VERITAS NetBackup™ 4.5

User's Guide

for Novell Netware NonTarget

March 2002
30-000520-011

VERITAS

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Preface

This guide describes how to use NetBackup to back up and restore folders that reside on either a NetWare file server configured as a NetBackup client, or on NetWare clients connected to that NetWare file server.

Audience

This guide is written for the end user and for the system administrator.

Organization

This guide is organized as follows:

Chapter 1, “Introduction”, provides an overview of NetBackup, describes how the end user operates NetBackup, and describes technical terms and concepts.

Chapter 2, “Modifying the Client Configuration”, provides instructions on configuring NetBackup client software and NetBackup server software. It also provides important operating notes for this application.

Chapter 3, “User-Directed Operations”, explains how to use NetBackup to perform backup and restore operations.

Chapter 4, “Reference”, describes the various windows, screens, and menus associated with NetBackup.

Appendix A, “OTM Parameter Information”, provides information on formatting the `bp.ini` file when using Open Transaction Manager.

Related Documentation

The following documents provide related information. For a more detailed listing of NetBackup documents, refer to *NetBackup Release Notes*.

- *NetBackup Installation Guide for PC Clients*

  Explains how to install NetBackup PC client software. The PC clients are Windows, Mac OS, and Novell NetWare.

If you have a UNIX server, refer to these documents:

- *NetBackup Release Notes*

  Provides important information about NetBackup DataCenter and BusinesServer products on UNIX- and Windows-based servers, such as the platforms and operating systems that are supported and operating notes that may not be in the NetBackup manuals or the online help.

- *NetBackup DataCenter System Administrator's Guide for UNIX*

  Explains how to configure and manage NetBackup DataCenter on a UNIX server.

- *NetBackup BusinesServer System Administrator's Guide for UNIX*

  Explains how to configure and manage NetBackup BusinesServer on a UNIX server.

- *NetBackup Troubleshooting Guide for UNIX*

  Provides troubleshooting information for UNIX-based NetBackup products.

If you have a Windows server, refer to these documents:

- *NetBackup Release Notes*

  Provides important information about NetBackup software, such as the platforms and operating systems that are supported and operating notes that may not be in the manuals or the online help.

- *NetBackup DataCenter System Administrator's Guide for Windows*

  Explains how to configure and manage NetBackup DataCenter on a Windows server.

- *NetBackup BusinesServer System Administrator's Guide for Windows*

  Explains how to configure and manage NetBackup BusinesServer on a Windows server.

- *NetBackup Troubleshooting Guide for Windows*

  Provides troubleshooting information for Windows-based NetBackup products.

Conventions

The following explains typographical and other conventions used in this guide.

Type Style

Typographic Conventions

Typeface	Usage
`Bold fixed width`	Input. For example, type **`cd`** to change directories.
`Fixed width`	Paths, commands, filenames, or output. For example: The default installation directory is `/opt/VRTSxx`.
Italics	Book titles, new terms, or used for emphasis. For example: *Do not* ignore cautions.
Sans serif (italics)	Placeholder text or variables. For example: Replace *filename* with the name of your file.
Serif (no italics)	Graphical user interface (GUI) objects, such as fields, menu choices, etc. For example: Enter your password in the **Password** field.

Notes and Cautions

Note This is a Note. Notes are used to call attention to information that makes using the product easier or helps in avoiding problems.

Caution This is a Caution. Cautions are used to warn about situations that could cause data loss.

Key Combinations

Some keyboard command sequences use two or more keys at the same time. For example, holding down the **Ctrl** key while pressing another key. Keyboard command sequences are indicated by connecting the keys with a plus sign. For example:

Press Ctrl+t

Command Usage

The following conventions are frequently used in the synopsis of command usage.

brackets [ ]

The enclosed command line component is optional.

Vertical bar or pipe (|)

Separates optional arguments from which the user can choose. For example, when a command has the following format:

`command` *arg1*|*arg2*

the user can use either the *arg1* or *arg2* variable.

Terms

The terms listed in the table below are used in the VERITAS NetBackup documentation to increase readability while maintaining technical accuracy.

Term	Definition
Microsoft Windows, Windows	Terms used as nouns to describe a line of operating systems developed by Microsoft, Inc. A term used as an adjective to describe a specific product or noun. Some examples are: Windows 95, Windows 98, Windows NT, Windows 2000, Windows servers, Windows clients, Windows platforms, Windows hosts, and Windows GUI. Where a specific Windows product is identified, then only that particular product is valid with regards to the instance in which it is being used. For more information on the Windows operating systems that NetBackup supports, refer to the VERITAS support web site at `http://www.support.veritas.com`.
Windows servers	A term that defines the Windows server platforms that NetBackup supports; those platforms are: Windows NT and Windows 2000.
Windows clients	A term that defines the Windows client platforms that NetBackup supports; those platforms are: Windows 95, 98, ME, NT, 2000, XP (for 32- and 64-bit versions), and LE.

Getting Help

For updated information about this product, including system requirements, supported platforms, supported peripherals, and a list of current patches available from Technical Support, visit our web site:

```
http://www.support.veritas.com/
```

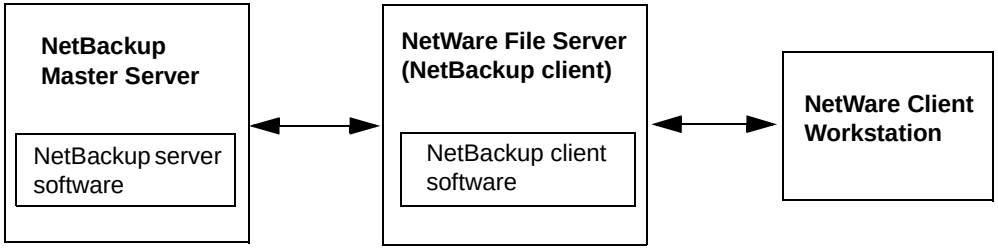
VERITAS Customer Support has an extensive technical support structure that enables you to contact technical support teams that are trained to answer questions to specific products. You can contact Customer Support by sending an e-mail to support@veritas.com, or by finding a product-specific phone number from the VERITAS support web site. The following steps describe how to locate the proper phone number.

1. Open `http://www.support.veritas.com/` in your web browser.
2. Click **Contact Support**. The *Contacting Support Product List* page appears.
3. Select a product line and then a product from the lists that appear. The page will refresh with a list of technical support phone numbers that are specific to the product you just selected.

Introduction 1

During installation, the Backup, Archive, and Restore interface is configured to work with a specific NetBackup client. When a user starts an operation using the Backup, Archive, and Restore interface, the software sends the appropriate messages to its designated NetBackup client. The software on the NetBackup client then communicates with the server and handles the client side of the operation.

In a NetWare configuration, the NetBackup client must always be a NetWare file server, configured as a NetBackup client. In this manual, the term NetWare file server refers to a NetBackup client, unless otherwise specified. The Backup, Archive, and Restore interface is installed on a NetWare workstation that is a Windows machine.



All backups and restores of NetWare workstations are done through that file server. Other NetWare servers configured as Storage Management Data Requestors can also perform backups and restores.

You can start backups and restores directly from a Backup, Archive, and Restore interface, without logging into the NetBackup server. After a user operation is started, it runs under control of the NetBackup server. You request the service and the server manages the rest, including the storage and retrieval of data.

Backup Operations

A backup saves copies of selected files and folders from a NetBackup client to a storage device on a NetBackup master server or a NetBackup media server.

User-Directed Backups

You can perform a user-directed backup during the time period scheduled by the NetBackup system administrator. NetBackup allows you to select a combination of files, folders with files, or entire volumes to back up.

Server-Directed Backups

The NetBackup administrator can schedule full backups and incremental backups to occur automatically and unattended, under the control of the NetBackup master server. Full, incremental, and true image backups can only be performed by the NetBackup master server. When properly scheduled, the server-directed backups will meet most of your backup requirements.

Note In previous versions of NetBackup for Netware, server-directed backups could be only partially successful since some applications retain locks on files when left open. NetBackup DataCenter is packaged with OTM (Open Transaction Manager), which resolves this problem. If OTM is disabled, be sure to shut down all applications on the NetBackup client before proceeding with server-directed backups. See the *NetBackup Installation Guide for PC Clients* for more information on installing OTM.

Note OTM is a separately-priced option for BusinesServer.

Full Backup

When the NetBackup master server is configured to perform a full backup, NetBackup backs up all files in a specified folder or volume to a storage unit. The archive bit is cleared as each file is backed up. If the full backup fails, NetBackup will attempt another full backup at the same time each day until successfully completed. A successfully completed backup will include all files.

Cumulative-Incremental Backup

When the NetBackup master server is configured to perform a cumulative-incremental backup, NetBackup backs up all files that have changed since the last successful full backup.

Cumulative-incremental backups can be configured to use either the datetime stamp or the archive bit. If the datetime stamp is used, the cumulative-incremental backup includes all files with a datetime stamp that is more recent than the last full backup. If the archive bit is used, the cumulative-incremental backup includes all files that have their archive bit set. Archive bits are not cleared on cumulative-incrementals. Refer to “General Tab” on page 60 for more details on performing incremental backups with archive bits.

Differential-Incremental Backup

When the NetBackup master server is configured to perform a differential-incremental backup, NetBackup backs up all files that have changed since the last successful backup.

Differential-incremental backups can be configured to use either the datetime stamp or the archive bit. If the datetime stamp is used, the differential-incremental backup includes all files with datetime stamps that are more recent than the last full or incremental backup. If the archive bit is used, the differential-incremental backup includes all files that have their archive bit set. Archive bits are cleared on differential-incrementals if all files are successfully backed up. Refer to “General Tab” on page 60 for more details on performing incremental backups with archive bits.

True Image Backup

A true image backup takes place when the **Collect true image restore information** attribute has been set on the NetBackup master server. When this attribute is set, NetBackup collects additional information necessary to restore a folder to exactly what it was at the time of the full backup or incremental backup.

Only those backups performed with this attribute set can be used for the true image restore. For complete details, refer to the *NetBackup System Administrator’s Guide for UNIX* or the *NetBackup System Administrator’s Guide for Windows*.

Restore Operations

A restore reads backups from the storage device on the NetBackup master server or the NetBackup media server and restores them to the NetBackup client. NetBackup allows you to select a combination of files, folders with files, or entire volumes to restore.

File Permissions and Open Files

File permissions require write permission on the destination folder in order to restore a file. A file will not be restored when a file with the identical name is open on the NetBackup client.

Trustee Rights

If the trustee rights to a file on a NetWare system have changed since the file was backed up, they will be restored to what they were at the time of the backup.

A file will be restored by NetBackup as follows:

- A user that has been given trustee rights to the file since the backup will have those rights to the file after the restore.
- A user that has had rights to the file removed since the backup will again have rights after the file is restored.

Server-Directed Restores

The administrator on the NetBackup master server can direct restores to any NetBackup client (regardless of which NetBackup client the files came from).

A client can prohibit server-directed restores by clearing the **Allow Server-Directed Restores** option in the **General** tab. This option can only be cleared by the system administrator. Refer to “General Tab” on page 60.

User-Directed Restores

A user can start a restore operation at any time. Restored folders and drives include all files that were backed up during a range of backups. NetBackup is also able to restore from Backup Exec images, redirect a restore to a different client, and perform true image restores.

Restoring from Backup Exec Images

NetBackup 4.5 can read Backup Exec media written by Backup Exec 7.3 or later. To be able to restore from Backup Exec images, the Backup Exec catalogs need to have been converted to the NetBackup catalog format, using the catalog converter utility. The Backup Exec Tape Reader option also needs to be installed on the NetBackup server. See your system administrator for more information.

Redirected Restore to a Different Client

With the necessary permissions and configuration, users can browse the NetBackup database for files backed up by another NetBackup client and restore files to their own computer.

System administrators can direct restores to the client that originally backed up the files or to different client. This type of restore must be performed on the master server and is called a server-directed restore.

Restores from True Image Backups

True image backups can be restored only on server-directed backups in which the **Collect true image restore information** attribute has been set. Refer to the *NetBackup System Administrator's Guide for UNIX* or the *NetBackup System Administrator's Guide for Windows* for details.

A true image restore of a folder, by default, restores the folder so its contents are exactly what they were at the time of the most recent server-directed full backup or incremental backup. Files deleted prior to the specified backup are not restored.

During a true image restore of a folder, NetBackup determines which files belong in the folder and then reconstructs it by using the most recent backup of these files.

NetBackup does not allow a true image restore that is based on the time of a user operation. However, NetBackup does use the backups from a user-directed operation if they are more recent than the latest server-directed full backup or incremental backup.

A true image restore is the best choice if, for example, you have recently cleaned up a folder by deleting unwanted files and now want to restore the latest version without having to repeat your cleanup. It is also possible to restore the true image of an earlier version of a folder.

View Status

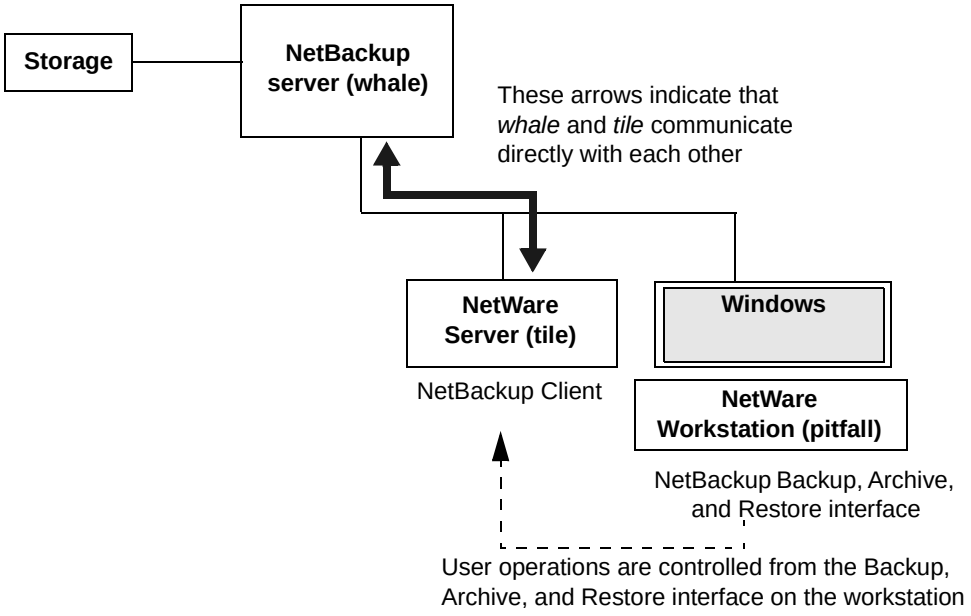
You can view, print, and delete status reports from within the View Status dialog box.

NetBackup Configuration Examples

The following examples explain how NetBackup for Novell NetWare works in typical network configurations.

Example Network with One NetBackup Client

Refer to the figure below for this example.



Network Configuration

This example network includes the following components.

whale	NetBackup server.
tile	NetWare server - tile is a Storage Management Data Requestor and a file server for NetWare clients. In addition, tile is a NetBackup client in a policy on the NetBackup server named whale. Therefore, files on tile can be backed up to and restored from whale.
pitfall	NetWare workstation - pitfall is a NetWare workstation of tile. The Backup, Archive, and Restore interface, a Windows application, is installed on NetWare workstations such as pitfall.

In this network, a user on pitfall can back up files that reside on tile and then restore these same files to tile.

Network Procedure

The following describes a back up and restore of files that reside on tile.

1. From the Backup, Archive, and Restore interface on pitfall, a user requests a backup of files that are on the NetBackup client tile.

2. tile sends the backup request to the NetBackup server whale.

3. whale responds to the request, a connection is established between tile and whale, and the backup proceeds.

   Backup data flow is from tile to whale. tile is the NetBackup client and the system that the NetBackup catalog shows as the owner of the files.

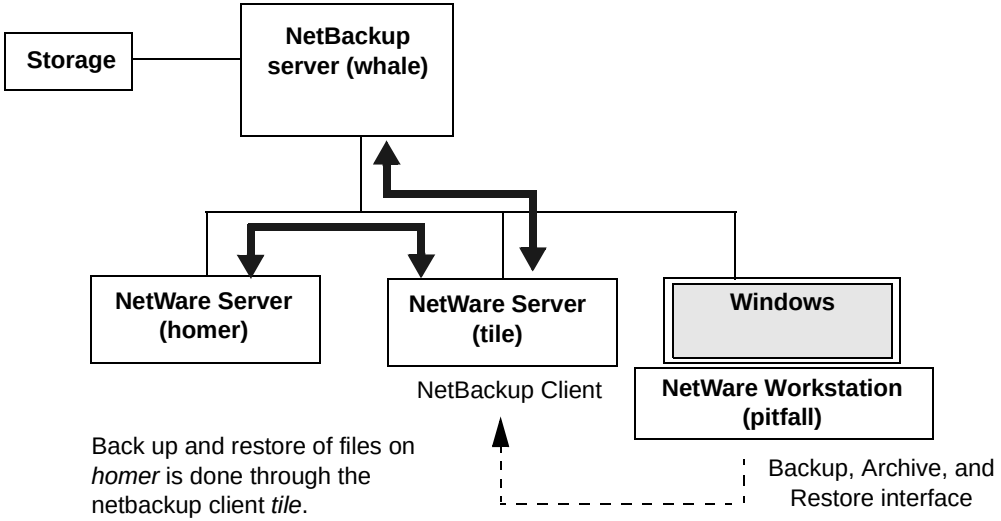
4. From the Backup, Archive, and Restore interface on pitfall, a user requests that the files specified in step 1 be restored to a folder on tile.

5. tile sends the request to whale.

6. The files are restored to tile from whale.

Example Network that has Non-NetBackup Clients

Refer to the figure below for this example.



Network Configuration

The Backup, Archive, and Restore interface allows the back up and restore of files on NetWare servers that are not NetBackup clients, providing those servers are SMDRs (Storage Management Data Requestors). For example, homer is an SMDR and a file server for NetWare Workstations. However, homer is not a NetBackup client.

In this network, a user on pitfall can back up files that reside on homer and then restore them to homer. However, because homer is not a NetBackup client, the files are actually backed up and restored through tile as explained in the following section.

Network Procedure

The following example describes a back up and restore of files that reside on homer through tile.

1. From the Backup, Archive, and Restore interface on pitfall, a user requests a backup of files that are on the NetWare server named homer.

   Notice that users can back up and restore files that reside on:

   - NetBackup clients, such as tile

- Non-NetBackup clients such as homer, providing the non-NetBackup clients are SMDRs

2. tile sends the backup request to the NetBackup server whale.

3. whale responds to the request, a connection is established between tile and whale, and the backup proceeds.

   Backup data flow is from homer to tile and then from tile to whale. tile is the NetBackup client and the system that the NetBackup catalog shows as the owner of the files.

4. From the Backup, Archive, and Restore interface on pitfall, a user requests that the files specified in step 1 be restored to a folder residing on homer.

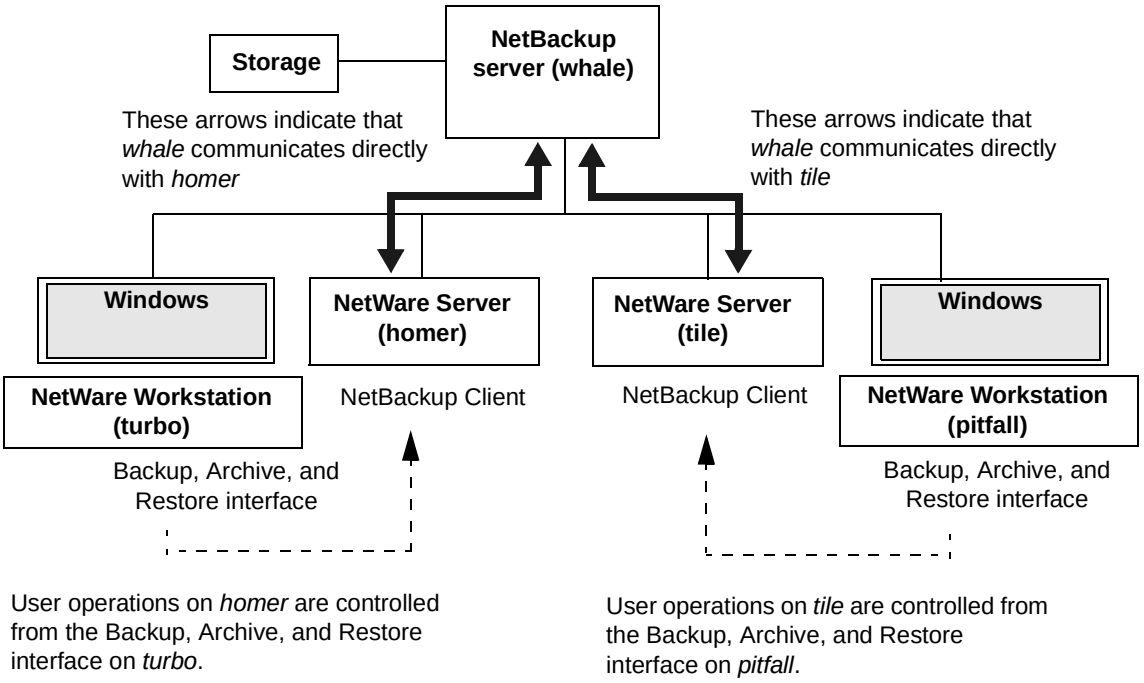
5. tile sends the request to whale.

6. The files are restored to homer.

   Restore data flow is from whale to tile and then from tile to homer.

Example Network with Multiple NetBackup Clients

Refer to the figure below for this example.



This shows a network with two NetWare servers that are NetBackup clients. In this network, users can:

- back up and then restore files that reside on respective NetBackup clients.

  For example, a user on pitfall can back up files that reside on tile and then restore these same backups to tile.

- back up and then restore files that reside on other NetBackup clients.

For example, a user on pitfall can back up files that reside on homer and then restore these same backups to homer. A user on turbo has the same capabilities in regards to files on tile.

- restore files that were originally backed up by another NetBackup client.

  For example, a user on pitfall can restore files to tile that were originally backed up by homer. This is called a redirected restore to a different client and requires some additional configuration on the server in order to allow access to the other client's backups.

- control operation on homer or tile from a Backup, Archive, and Restore interface on either turbo or pitfall.

Modifying the Client Configuration 2

Once NetBackup has been installed, you may want to make some adjustments to the NetBackup configuration on the NetWare file server. If so, you can easily do this by changing the BP.INI file. This configuration file is used by the NetBackup client software to control back up and restore operations on your computer and is created in the SYS:\OPENV\NETBACK directory the first time you run the NetBackup interface program, bp. (For information onrunning the NetBackup interface program (bp) please refer to the *NetBackup User's Guide for Novell Netware Target*.)

Note For information on modifying the OTM parameters in the BP.INI file, please refer to the appendix "OTM Parameter Information".

BP.INI File Description

The BP.INI file is divided into sections and each section is formatted as follows:

[*section name*]
parameter name = *value*

Where:

[*section name*]	Identifies the start of a new configuration file section.
parameter name	Identifies the name of a configuration file parameter.
value	Specifies the value to be set for the associated configuration file parameter.

The following describes each section of the file. An example file follows these descriptions.

[bp] Section

ClientName

Specifies the name of the client as specified during installation. This name must match that in the NetBackup master server policy configuration.

`List_Files_Timeout`

Specifies the number of seconds to wait for a response from the NetBackup server when listing files. If this amount of time is exceeded, the user receives the error "socket read failed" even though the server may still be processing the user's request.

The default value is 300 seconds.

`Restore_Retries`

Specifies the number of times to retry a restore after a failure.

The default is 0 (no retries).

`Time_Overlap`

Specifies the number of minutes added to the date range for incremental backups when using date-based backups. This value can be used to compensate for differences in the speed of the clock between the client and server.

The default is 60 minutes.

`Use_Archive_Bit`

Specifies whether incremental backups are done based on the archive bit. Supported values are:

`yes`, which specifies that files are backed up using the archive bit

`no`, which specifies that files are backed up using the datetime stamp

The default is `yes`.

`Perform_Default_Search`

Specifies whether a search is automatically performed for restored files and folders when the Restore window is opened. Supported values are:

`0`, (yes), which means that a search for restored files and folders is performed automatically when the Restore window is opened. This is default.

`1`, (no), which means that a search for restore files and folders is not automatically performed when the Restore window is opened. The files and folders are not displayed until a manual search is performed.

`User_Directed_Timeout`

Specifies the amount of time that the client waits for the server to reply back.

The default is 60 seconds.

Allow_Server_Write

Specifies whether the system administrator can initiate a restore from the NetBackup server to this client. The supported values are:

yes, which allows the system administrator to initiate a restore

no, which prohibits the system administrator from initiating a restore

The default is yes.

Version

Specifies the NetBackup release level that was installed on this computer. Do not modify this value.

ALLOW_NON_RESERVED_PORTS

Specifies that NetBackup can use ports 1025 through 5000. This option can be required in order to back up a client that is on the other side of a firewall from the NetBackup server (the firewall must also permit the use of ports 1025 through 5000).

In addition to adding ALLOW_NON_RESERVED_PORTS to the client, execute the following commands as root on the master server:

UNIX server:

```
cd /usr/openv/netbackup/bin/admincmd
./bpclient -client client_name -add -connect_nr_port 1
```

Windows NT server:

```
cd install_path/netbackup/bin/admincmd
bpclient -client client_name -add -connect_nr_port 1
```

Where *client_name* is the name of the client to which you added the ALLOW_NON_RESERVED_PORTS option. On Windows NT, *install_path* is the directory where NetBackup is installed.

BUFFER_SIZE

Specifies the size of the TCP/IP buffers that are used to transfer data between the NetBackup server and client. The size is specified in kilobytes. For example, specify 10 for a buffer size of 10 kilobytes.

The minimum allowable value is 2. If you specify a number less than 2, BUFFER_SIZE will be set to 2.

The default is 32.

ANNOUNCE_DHCP_INTERVAL

This parameter is not used in NetBackup 4.5.

CASE_SENSITIVE_EXCLUDE_LIST

This parameter is not used in NetBackup 4.5.

USE_ARCHIVE_BIT_INCR_WAIT

The value indicates how long (in seconds) the client will wait for acknowledgment from the server that the backup was successful before clearing the archive bits. If the server does not reply within this time period, the archive bits are not cleared.

[tcpip] Section

BPCD

Specifies the port number that the NetBackup client NLM on the Netware file server uses to receive communications from the NetBackup server. Always use the default value unless the system administrator on the master server has told you to change it.

The default is 13782.

BPRD

Specifies the port number used by the NetBackup request daemon, bprd, which executes on the master server. Client requests go to bprd on the master server. Always use the default value unless the system administrator on the master server has told you to change it.

The default is 13720.

[user] Section

backup_class

Specifies the policy name to use for user-directed backups. This parameter is used only on the client. The default is to use the first policy found that contains the client and a user-directed backup schedule.

backup_sched

Specifies the schedule name to use for user-directed backups. This parameter is used only on the client. The default is to use the first user-directed backup schedule in the first policy found that contains the client and a user-directed backup schedule.

[debug] Section

The parameters in this section control the amount of information that NetBackup writes to its BP and BPCD debug logs. NetBackup creates and writes to these logs only if you create BP and BPCD directories under SYS:\OPENV\NETBACK\LOGS.

- BP logs have information about user operations, such as backups and restores.

- BPCD logs have information about the NetBackup client NLM (Netware Loadable Module).

See the *NetBackup System Administrator's Guide for UNIX* or *NetBackup System Administrator's Guide for Windows* for more information on using debug logs.

Note Debug logs can consume a lot of disk space. Delete them when they are no longer needed.

`flush` Controls the level at which the log files are flushed. The higher the flush level the more often the log file is flushed. Supported values are `0`, `1`, or `2`. The default is `0`.

`heap` This parameter is not used in NetBackup 4.5.

`level` Sets the debug level. Supported values are `0`, `1`, or `2`. The higher the level, the more information that is written to the log files. The default is `0`.

Note Setting `level` to `1` or `2` can cause the log files to be very large.

`tcp` This is used for debug purposes and enables `tcp` debugging. Supported values are:

`0` - No extra logging.
`1` - Log basic tcp / ip functions.
`2` - Log all tcp / ip functions including all read and write requests.
`3` - Log contents of each read / write buffer.

Note Setting `tcp` to `2` or `3` can cause the log files to be very large.

[clients] Section

Specifies the names of the clients whose backup images you can browse for files to restore. The NetBackup master server administrator must provide you permission to browse and restore from any client other than the one from which you are running NetBackup.

[servers] Section

Specifies the hosts that can be a NetBackup server for this client. The master server must be first in the list.

Example BP.INI File

The following is an example of a typical `BP.INI` file:

```
[bp]
ClientName = homer
List_Files_Timeout = 300
Restore_Retries = 0
Time_Overlap = 60
Use_Archive_Bit = yes
Perform_Default_Search = yes
User_Directed_Timeout = 60
Version = 20

[clients]
browser = homer

[servers]
master = whale
server = windows
server = danr

[tcpip]
bpcd = 13782
bprd = 13720

[user]
Backup_Class = pc_alpha
Backup_Sched = user_directed_a

[debug]
flush = 0
level = 0
tcp = 0
```

Important Operating Notes

Read the following before performing any operations on the client.

- To perform the backup and restore operations described in this manual, you *must* run the NetBackup Client software as ADMIN or equivalent on the NetWare server console and NetWare client workstation.
- NetBackup can use either of two methods to perform incremental backups:
  - **Archive bit**. With this method, NetBackup includes files in an incremental backup only if their archive bit is set. The system sets the archive bit when the file is changed and clears it again when a full backup is done. User or cumulative-incremental backups do not clear the archive bit. A differential-incremental backup will clear the archive bit.
  - **Date and time**. With this method, NetBackup includes a file in an incremental backup only if the file's modification date indicates that the file has been changed since the last full or incremental backup. Be aware that if you install or copy files from another computer, the new files retain the modification date of the originals. If the original date is before the last backup date on this computer, then the new files will not be backed up until the next full backup.

    The `Use_Archive_Bit` setting in the `BP.INI` file determines the method that NetBackup uses. See "Modifying the Client Configuration" on page 13 for information on configuring this parameter.
- Viewing of files on the Search screen is limited based on the amount of free memory you have on the client before running NetBackup. If this limit is reached, you should modify the date, file path, or directory depth parameters to narrow the scope of the search.
- DOS workstation TSAs are displayed only if `tsados.nlm` (NetWare 3.x and 4.x) or `tsaproxy.nlm` (NetWare 5.x and 6.0) is loaded on the NetWare file server, and if `tsasms.com` is running on a NetWare client connected to the NetWare file server. If you will be backing up DOS workstations through the NetWare file server, make sure these two processes are running on the NetWare client and server before attempting to define a target for backing up a DOS workstation.
- You can back up and restore the NetWare Directory Services (NDS) in the same manner as other files and directories. If it becomes necessary to restore NetWare Directory Services, you should obtain the following Novell Technical Information Document:

  TID2934033 and TID2919565, Restoring NetWare 4.x Backup to 4.x Server

  and follow the instructions in that document.

- NetBackup for NetWare clients skip open files during backups. Open Transaction Manager, shipped with NetBackup DataCenter, will back up open NetWare files. For information on installing OTM, see the *NetBackup Installation Guide for PC Clients*. For information on the OTM parameters, please review the appendix, “OTM Parameter Information”.

Note Open Transaction Manager (OTM) is a separately-priced option for BusinesServer. If the client’s server is a NetBackup BusinesServer, you must have license keys for this feature registered on the server to enable this feature.

Note NetBackup will back up compressed files in their compressed format. You can subsequently restore the compressed files only to NetWare volumes that support compression. If you know you will need to restore uncompressed files, use the `netware_uncompress` command before you back up files to ensure that they are backed up in an uncompressed format.

User-Directed Operations 3

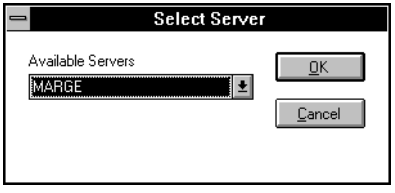
This section provides step-by-step instructions on using the Backup, Archive, and Restore interface to perform backups and restores. For information on scheduled backups and other server-directed operations, see the *NetBackup System Administrator's Guide for UNIX* or the *NetBackup System Administrator's Guide for Windows*.

Starting the Backup and Restore Interface

`BPCD.NLM` and `BPSRV.NLM` must be running on your NetWare server before starting the Backup, Archive, and Restore interface.

1. Click the Windows **Start** menu, point to **Programs**, point to **VERITAS NetBackup**, and click **NetBackup for NetWare**.

2. The following dialog box will appear.



3. Select the name of the NetWare server which will be used to perform a NetBackup operation.

4. Click **OK**.

   The Backup, Archive, and Restore interface displays.

Performing Backups

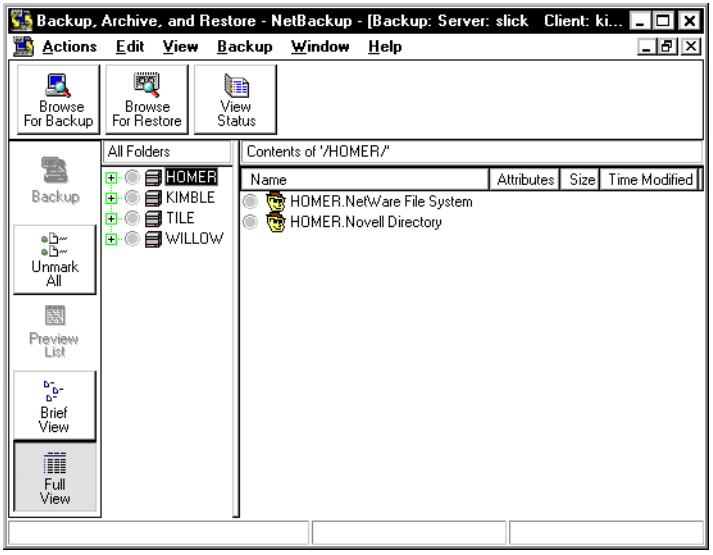
This section includes a tutorial which goes through a simple backup of the `BP.BAK` file installed in the NetBackup folder.

1. Start the Backup, Archive, and Restore interface as described in “Starting the Backup and Restore Interface” on page 21.

   The Backup, Archive, and Restore interface displays.

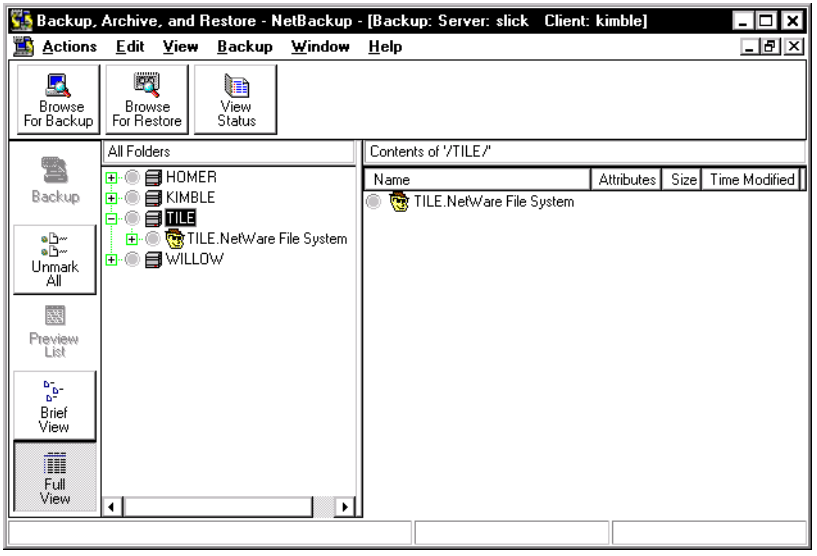
2. On the **Actions** menu, choose **Backup Files and Directories**.

   The NetBackup Backup window is displayed.

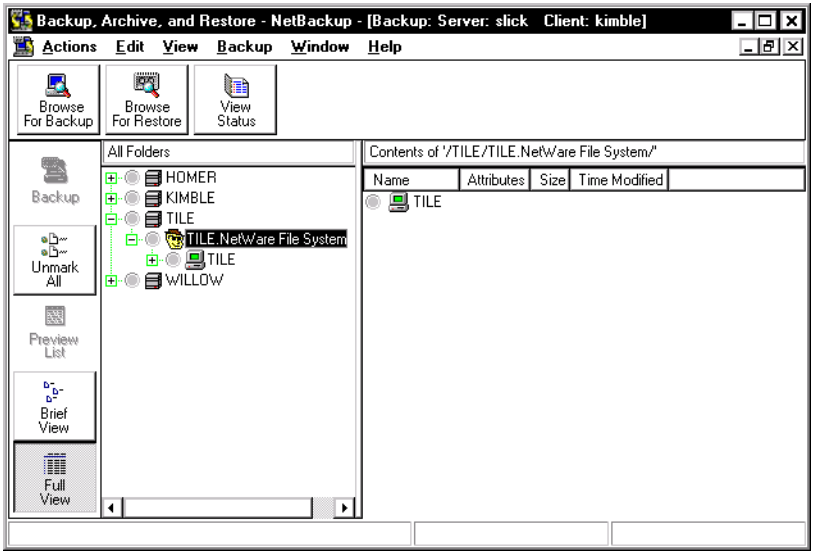


3. Mark a file to backup.

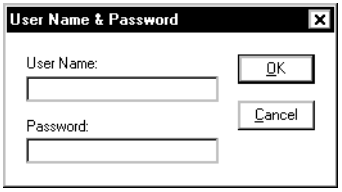
a. Double-click the SMDR (Storage Management Data Requestor). In this example that would be TILE. The tree will expand to display the contents of the SMDR.



b. Double-click the Target Service Agent (TSA). In this example that would be Tile NetWare File System. The tree will expand to display the contents of the TSA.

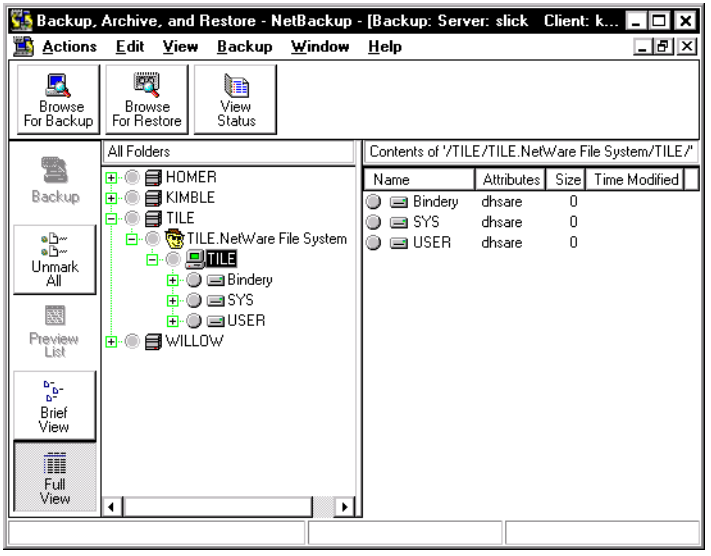


c. Double-click the file server. In this example that would be TILE. The User Name & Password dialog box displays.



d. Type the **User Name** and **Password**. The user must have supervisor or admin equivalency. The username must be full context, for example, .ADMIN.RSVL.

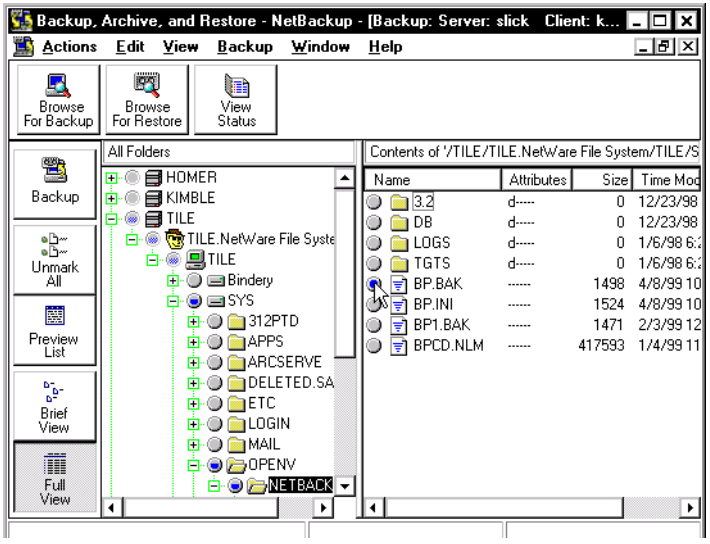
e. Click **OK** to enter the **User Name** and **Password**. The NetBackup Backup window displays the contents of TILE.



f. Double-click the SYS volume. Open the OPENV directory and then the NETBACK directory.

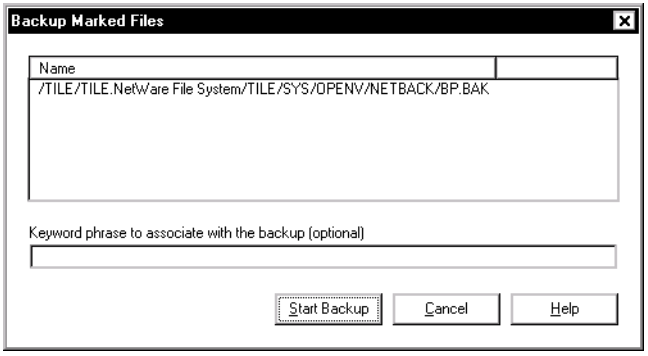
A dialog box displays, asking for the namespace to use to display the directory and file names.

g. Find the `BP.BAK` file and select the circle to the left of the item.



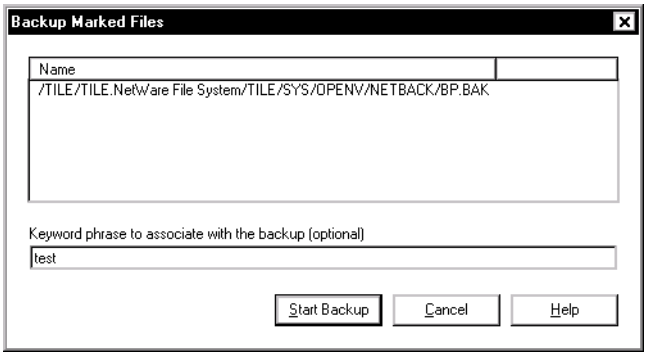
4. On the **Backup** menu, choose **Backup Marked Files**.

The Backup Marked Files dialog box is displayed.



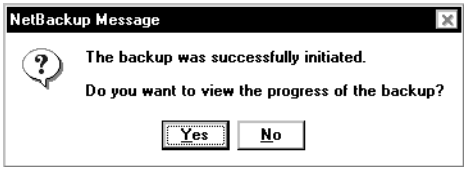
a. Review your selections in the **Name** list box.

b. If you wish to associate the backup with a keyword phrase, enter a keyword in the **Keyword phrase to associate with the backup (optional)** box. Later, you can search for this keyword if you wish to restore the items that were backed up. In this example **`test`** is used as the keyword.



c. Click **Start Backup**.

The backup request goes to the NetBackup master server. A NetBackup message displays, indicating that the backup was successfully started.



5. Click **Yes** on the NetBackup Message dialog box to open the View Status dialog box.

The View Status dialog box allows you to view the progress report of a NetBackup operation. For more information see “View the Status of a User-Directed Operation” on page 33.

Note The NetBackup operation may take a few minutes to complete. You can close the Backup, Archive, and Restore interface after starting a backup operation. NetBackup will continue the backup operation in the background.

Performing Restores

This section walks you through a simple restore of the `BP.BAK` file backed up in "Performing Backups" on page 22 of this manual.

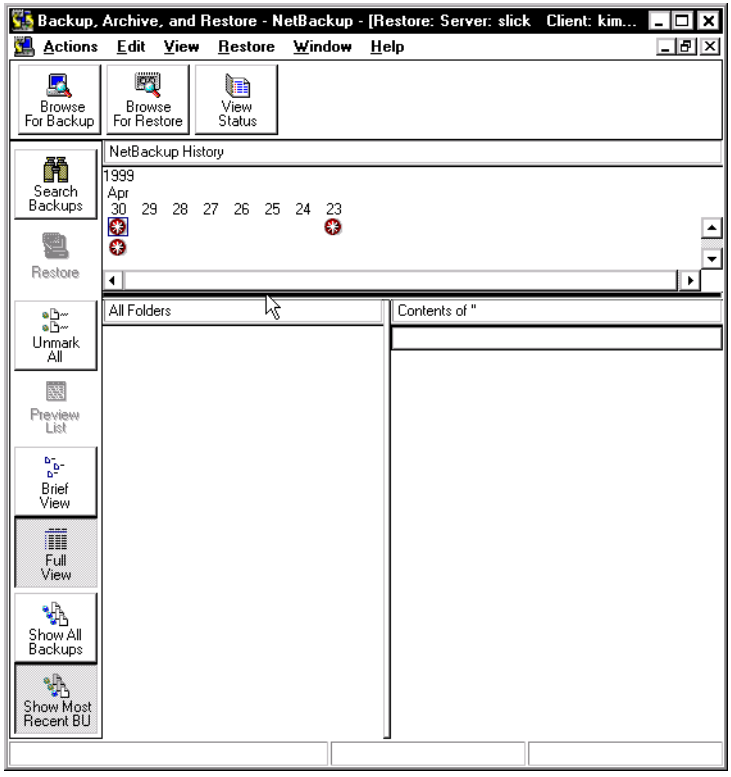
Note The NetWare Directory Services (NDS) are backed up in the same manner as other files and directories. If it is necessary to restore NetWare Directory Services, obtain the following Technical Information Document from the Novell website, www.support.novell.com:
TID2934033 4.x or 5.x Migration / DSMaint Procedure
TID2919565 - DSMAINT.TXT
Follow the instructions in that document.

---

1. Start the Backup, Archive, and Restore interface as described in "Starting the Backup and Restore Interface" on page 21.

2. Click **Browse for Restore** on the toolbar.

   The NetBackup Restore window displays.



There may be a delay before lists display in the NetBackup Restore window. NetBackup has to obtain the file information from the catalogs on the NetBackup master server.

If files or folders do not display in the NetBackup Restore window, it can be due to one of the following:

- **Perform Default Search** is not enabled. In this case, start a search manually by clicking **Search Backups** on the **Actions** menu. Or to display the files in a backup, click a backup image.
- The NetBackup server does not have any backups of files for your client. Ensure that the client is connecting to the correct server (see "Servers Tab" on page 63). Also, ensure that you are using the correct client name (see "General Tab" on page 60). You can also refer to the title bar, which displays the names of the client and the server the client is connected to. If these settings are correct and you believe there are backups available, contact your system administrator.

3. Select a file to restore.

If you know the backup image (or the range of images) you can select the file from the NetBackup History pane without going through the Search Backups dialog box.

In this tutorial, we are going to use the Search Backups feature to restore the `BP.BAK` file backed up in "Performing Backups" on page 22.

Tip Before initiating a search, collapse the tree in the All Folders pane as much as possible. NetBackup will expand the tree to the folders that match your search criteria.

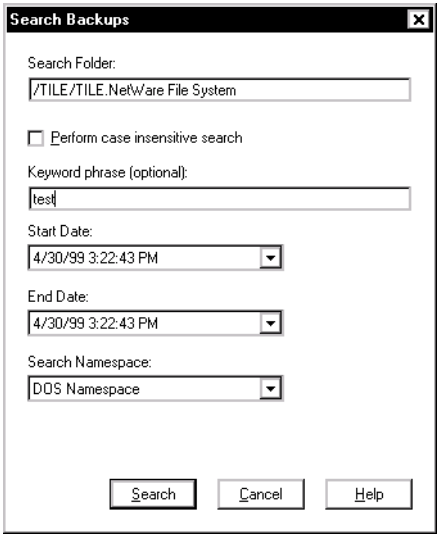
a. On the **Actions** menu, click **Search Backups**.

The Search Backups dialog box displays.

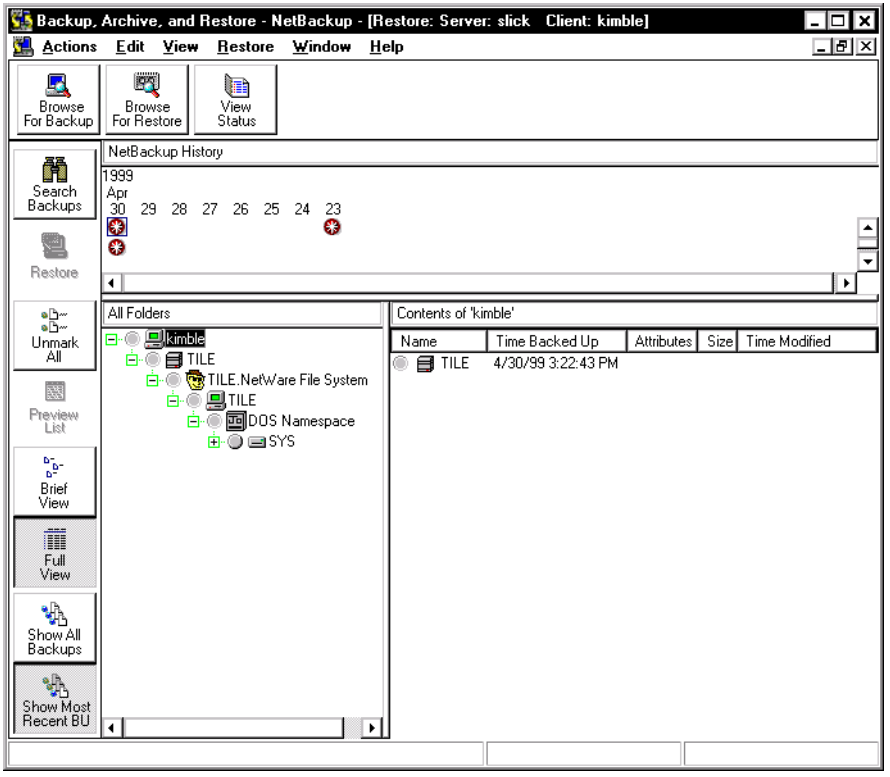
b. In the **Search Folder** box, type the path to the backed up file.

For this example the path is `/TILE/TILE.NetWare File System`.

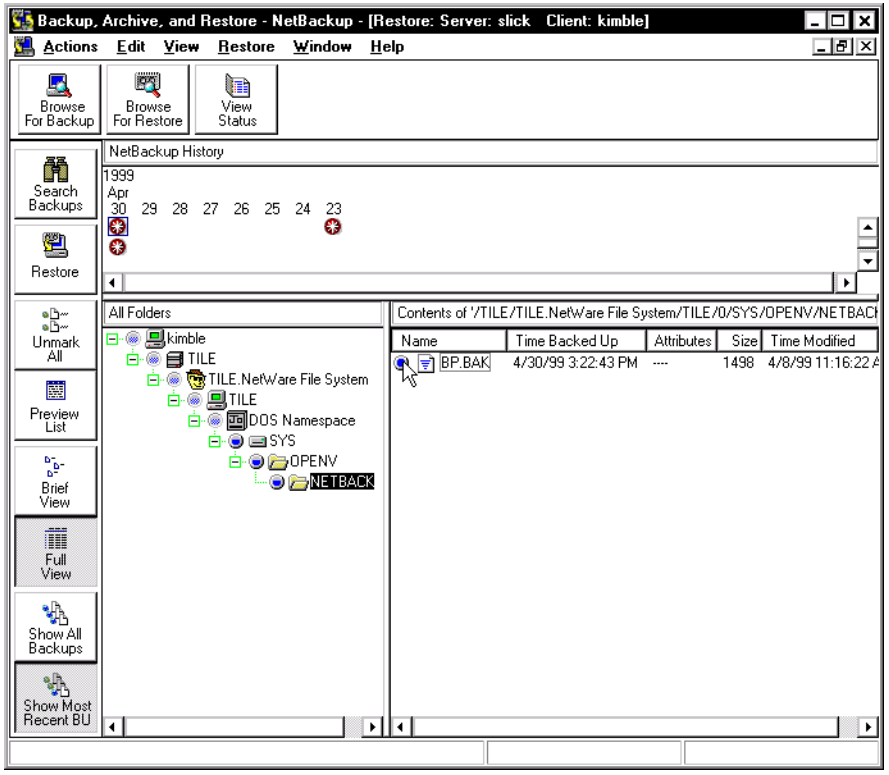
c. Type **`test`** in the **Keyword phrase (optional)** box.



d. Click **Search**.

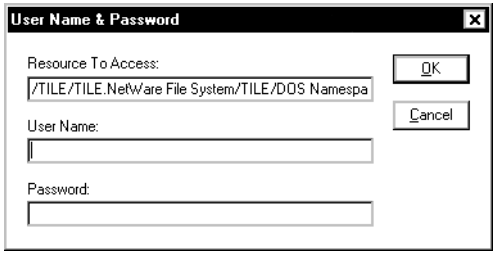


4. Select the circle to the left of the `BP.BAK` file.



5. On the **Restore** menu, click **Restore Marked Files**.

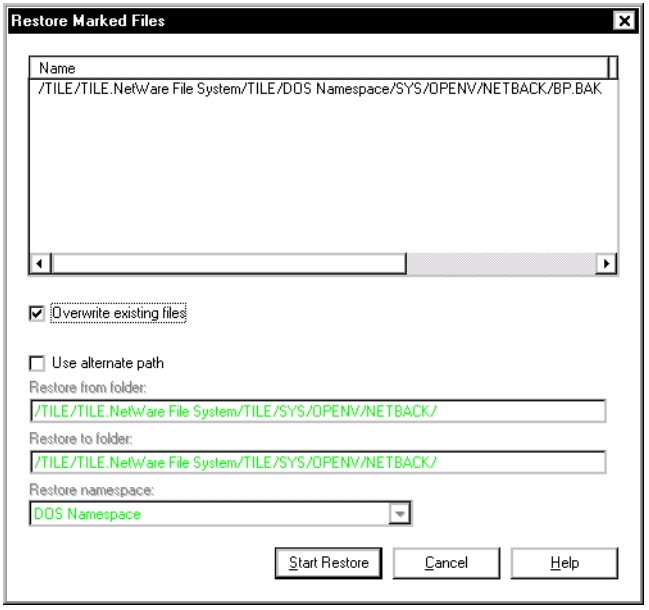
   The User Name & Password dialog box will appear.



6. Enter the **User Name** and **Password** and click **OK**.

   The Restore Marked Files dialog box will open.

7. Click **Overwrite existing files**.



8. Click **Start Restore**.

   A NetBackup message displays, indicating that the restore was successfully started.

9. Click **Yes** on the NetBackup Message box to open the View Status dialog box.

   The View Status dialog box allows you to view the progress report of a NetBackup operation. For more information see “View the Status of a User-Directed Operation” on page 33.

Note The NetBackup operation may take a few minutes to complete. After starting a restore operation, you can close the Backup, Archive, and Restore interface and perform other tasks on your computer. NetBackup will continue the restore operation in the background.

View the Status of a User-Directed Operation

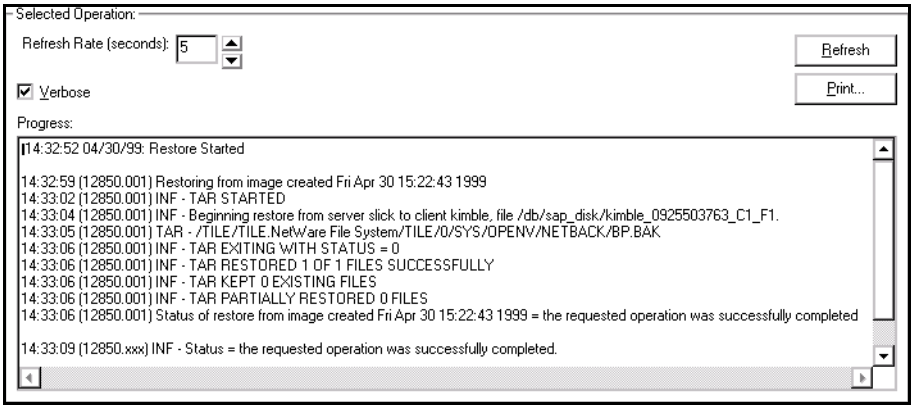
1. On the **Actions** menu, click **View Status**.

   The status of the operation displays under the Operation Status column.

2. Select the operation for which you want to check the progress.

3. Click **Refresh**.

   The lower pane will reflect the progress of the item selected in the top pane.



4. Select a refresh interval from the **Refresh Rate** box. The default setting is 0 seconds, which means the status will not be automatically refreshed. A larger interval may negatively affect the performance of the client and will result in small increase in network traffic.

5. By default the progress file is displayed in an abbreviated form. If you wish to view the entire contents of the progress file, select the **Verbose** option.

The NetBackup operation is finished when the Status changes to `Successful`. If NetBackup was unable to back up or restore all of the requested files, a status code appears a few lines before the end of the progress report. The *NetBackup Troubleshooting Guide for UNIX* or the *NetBackup Troubleshooting Guide for Windows* list the meaning of the final status code.

Advanced Restore Procedures

The following sections give detailed explanations of how to perform different types of advanced restore procedures.

Selecting Specific Backup Dates to Restore

By default, the NetBackup Restore window shows the files and folders that were backed up from the time of the last full backup to the most recent backup. If the client belongs to more than one policy[1], the default display starts with the last full backup that occurred first. For example, assume that the client belongs to PolicyW1 and PolicyW2. Also assume that full backups occur for both of them: PolicyW1's most recent full backup occurred on Feb. 2 and PolicyW2's most recent full backup occurred on Feb. 10. The display shows files ranging from the time of the PolicyW1 full backup on Feb. 2.

The default range will satisfy the majority of your needs to restore files. There will be times, however, when you must restore a file that was not backed up during the default time period. For example, a file that was deleted prior to the last full backup does not appear in the default display. In this case, you must use the NetBackup History pane to select a backup that contains the file.

Searching for Files to Restore

1. Open the NetBackup Restore window.

2. On the **View** menu, choose **Show All Backups**. This will display all copies of files and folders from all of the backups. To display the most recent copy of the file or folder, choose **Show Most Recent Backup** from the **View** menu.

3. Select the images from the NetBackup History pane that you believe contain the files and folders you want to restore.

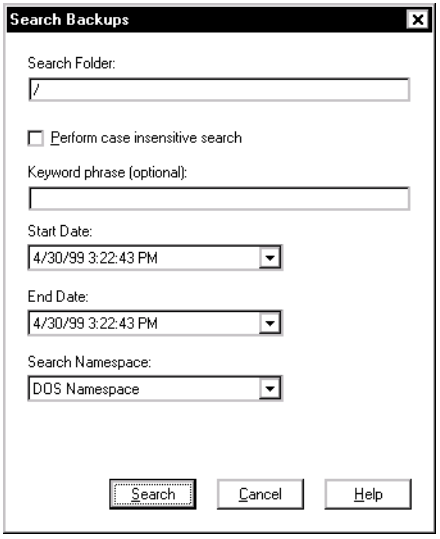
4. Narrow the search range as much as possible to speed up your search by doing the following:

   - Select a specific backup image in the NetBackup History pane.
   - To select a range of backup images, select the first one in the range and then, while holding the Shift key, select the last one in the range. In this case, NetBackup searches all of the backup images in the selected range. The range search will start after the second image is selected.

1. A NetBackup policy defines the backup policies for a specific group of one or more clients that have similar backup requirements. The NetBackup system administrator configures the policy for your PC.

- Cancel previous selections by selecting another backup.

5. To open the Search Backups dialog box, click **Search Backups** on the **Restore** menu.



6. Type the search path that you want NetBackup to use in its search.

Note The number of files you can list during a search is limited by the amount of free memory you have on your computer. If you reach the limit, modify the date or file path parameters to narrow the scope of the search.

By default, the Search Backups dialog box shows the information for the folder that is currently selected in the All Folders pane of the NetBackup Restore window. See “Search Backups Dialog Box” on page 81 for more information.

7. Click **Search**.

When the search is complete, NetBackup updates the NetBackup Restore window.

Restoring an Earlier Version of a Folder or File

This procedure will restore all files that were backed up during the range of backup dates. This includes files that were deleted from your online folder after they were backed up. If you do not want to restore the deleted files, refer to “Restoring a True Image of a Directory” on page 37.

1. Open a NetBackup Restore window.

2. Open the backup NetBackup History pane.

   If the NetBackup History pane is not open, click and drag the horizontal split bar down.

3. In the NetBackup History pane, select backup images for the dates of the backed up files or folders you want to restore.

   NetBackup will search the backup images, and display the contents of the backup images in the All Folders and Contents of ’<*folder*>’ panes.

   - To restore a version of a folder or file that existed prior to the last full backup, select only the backups that include the desired version of the folder or file. Continue with step 4.
   - To further narrow your search for a specific folder, file or keyword, go to step a.

   a. On the **Restore** menu, click **Search Backups**.

   b. Enter a filename or keyword.

   c. Click **Search**. When the search is complete, the NetBackup Restore window is updated.

4. Select the folder you want to restore in the All Folders pane of the NetBackup Restore window.

5. Select the files or folders you need in the Contents of ’<*folder*>’ pane. By default, NetBackup restores files and folders to their original location.

6. On the **Restore** menu, click **Restore Marked Files**.

Restoring a True Image of a Directory

Note You can restore a true image of a directory only if the NetBackup policy that is backing up your files and directories is configured to collect true image restore information prior to backup. If in doubt, ask your NetBackup administrator.

What Is a True Image Restore?

A true image restore of a directory, by default, restores the directory so its contents are exactly what they were at the time of the most recent automatic full or incremental backup. Files deleted prior to the specified backup are not restored.

A true image restore is the best choice if, for example, you have recently cleaned up a directory by deleting unwanted files and now want to restore the latest version without having to repeat your cleanup. It is also possible to restore the true image of an earlier version of a directory.

Example of a True Image Restore

To illustrate the concept of a true image restore, refer to the following table, which shows the contents of a directory named `SYS:\DOC` during a series of backups performed between 12/01/00 and 12/04/00.

Day Type of Backup	12/01/00 (Full)	12/02/00 (Incr)	12/03/00 (Incr)	12/04/00 (User Back)	12/04/00 (Incr)
	file1	file1	file1	file1	file1
	file2	file2	file2	file2	file2
	dirA/fileA	dirA/fileA	dirA/fileA	dirA/fileA	-
	dirB/fileB	-	-	-	-
	file3	-	-	-	-
				dirC/fileC	-
				file4	file4

Assume that you are going to restore the most recent version of the directory.

- If you perform a standard restore, NetBackup will restore all files and subdirectories that were backed up during the time period from 12/01/00 (last full backup) through 12/04/00.

  ```
  file1
  file2
  ```


```
dirA\fileA
dirB\fileB
file3
dirC\fileC
file4
```

- If you restore a true image backup, NetBackup restores only the files and directories that existed at the time of the incremental backup on 12/04/00.

  ```
  file1
  file2
  file4
  ```

  NetBackup does not restore anything deleted prior to the 12/04/00 incremental backup.

  Notice that the restored directory does not include the dirA and dirC subdirectories, even though they were backed up on 12/04/00 with a user-directed backup. NetBackup did not restore these directories because they did not exist at the time of the incremental backup that was the reference for the true image restore.

True Image Restores and Overwriting

If you are overwriting the directory you are restoring, NetBackup does not delete files that are currently in the directory but not in the true image restore backups.

Using the previous example, if you had created a file5 after the incremental backup occurred on 12/04/00, but before doing the restore, then the contents of the directory after the restore would have been:

```
file1
file2
file4
file5 (this is the new file that is not in any of the backups)
```

▼ To restore a true image of a directory

1. On the **Actions** menu, point to **Restore** and click **Restore from True Image Backup**.

Note You can perform a true image restore only if the TIR (True Image Restore) option on the NetBackup server is set AND if a backup with the TIR option set has been previously performed. If you get a `No Entity Found` message at this point, notify your NetBackup administrator.

2. In the All Folders pane of the NetBackup Restore (True Image) window, double-click the parent of the folder you want to restore.

The double-click updates the NetBackup Restore (True Image) window to show the folders that are available for true image restores. Notice that the lists show only folders. Individual files do not appear because true image restores are intended only for restoring entire folders. To list or select individual files, use **Restore from Backup**.

If NetBackup cannot find any folders, click **Search Folder** in the Search Backups dialog box. Also check the range of backups that you are searching (NetBackup History pane). If all of these settings are correct and no folders are found, ask the administrator to see if the NetBackup policy that is backing up your files and folders is configured to collect true image restore information.

3. Select the folder you want to restore by marking it in the Contents of '<*folder*>' pane of the NetBackup Restore (True Image) window (you must select from this side of the window).

Note When a file in the folder has the same file name as a file in the true image backup, NetBackup will delete the file from the folder and replace, or restore, the file from the true image backup. NetBackup will not delete files from the folder that are not in the true image restore.

4. On the **Restore** menu, click **Restore Marked Files**.

   By default, NetBackup restores the folder to its original location.

Restoring from Backup Exec Images

It is possible to restore Backup Exec images or both Backup Exec and NetBackup images in a single NetBackup restore job. To be able to restore from Backup Exec images, the Backup Exec catalogs need to have been converted to the NetBackup catalog format, using the catalog converter utility. NetBackup 4.5 is able to convert on-disk catalogs of Backup Exec 7.3 or later. See your system administrator for more information.

Backup Exec backup type descriptions in the NetBackup Restore window differ from the descriptions of the NetBackup types. The differences are as follows:

NetBackup Backup Type	Backup Exec Backup Type
Full	Copy
Differential	Incremental
Cumulative Incremental	Differential

When restoring Backup Exec images to a NetWare client, the NetWare client must also be a NetBackup NetWare client. This means that `bpsrv.nlm` and `bpcd.nlm` must be running on the client.

Note NetBackup 4.5 is able to read Backup Exec media written by Backup Exec 7.0 or later.

Note The Backup Exec Tape Reader for NetBackup option should be installed on the NetBackup server. Refer to the *NetBackup DataCenter System Administrator's Guide for Windows* for more information.

Note Netware 3.x backups performed by Backup Exec will not be able to be restored using NetBackup.

▼ To restore from Backup Exec images

1. Start the Backup, Archive, and Restore interface.
2. Select the desired restore type.
   - To restore Backup Exec images: on the **Actions** menu, point to **Restore** and click **Restore from Backup Exec Backups**.
   - To restore Backup Exec and NetBackup images: on the **Actions** menu, point to **Restore** and click **Restore from Backup Exec Backups and Normal Backups**.

   The NetBackup Restore window displays.
3. Select the files or folders to restore.
4. On the **Restore** menu, click **Restore Marked Files**.

   The Restore Marked Files dialog box displays.
5. If desired, files can be redirected to a different path. Refer to the next section, "Restoring Files to a Different Path," for more information.

Note When both Backup Exec and NetBackup images are being restored, files cannot be redirected to a different path.

6. Select the desired restore options.
7. Click **Start Restore** to start the restore operation.

Restoring Files to a Different Path

Note If restoring from both Backup Exec and NetBackup images, files cannot be redirected to a different path.

In some instances, you may want to restore items to a file or path other than the one from which they were backed up.

1. Start the Backup, Archive, and Restore interface.
2. Select the desired Restore Type.
   - To restore from NetBackup images, on the **Actions** menu, point to **Restore** and click **Restore from Normal Backup**.
   - To restore from Backup Exec images, on the **Actions** menu, point to **Restore** and click **Restore from Backup Exec Backups**.

   The NetBackup Restore window displays.
3. Select the items to restore.
4. Click **Restore Marked Files** on the **Restore** menu. The Restore Marked Files dialog box displays.
5. Check **Use alternate path**.
6. In the **Restore from Folder** field, enter the directory from which the files were backed up.
7. In the **Restore to Folder** field, enter the directory to which you want to restore the files.
8. Click **Start Restore**.

Reference 4

This chapter provides reference information on the Backup, Archive, and Restore interface. It includes a description of the menus, windows, and dialog boxes.

How NetWare Entities are Displayed

Before using NetBackup, you must be familiar with how the NetWare entities appear in the NetBackup Backup window or NetBackup Restore window. When you first open a window, the left pane shows the NetWare servers that are running as SMDRs (Storage Management Data Requestors). The right pane shows the Target Service Agents on the SMDR that is selected in the left pane.

Note DOS workstation TSAs are displayed only if `tsados.nlm` (NetWare 3.x and 4.x) or `tsaproxy.nlm` (NetWare 5.x and 6.0) is loaded on the NetWare file server and `tsasms.com` is running on a NetWare client connected to the NetWare file server. If you will be backing up DOS workstations through the NetWare file server, make sure these two processes are running on the NetWare client and server before attempting to back up a DOS workstation.

Double-clicking on a folder in the NetBackup Backup window expands it to the next lower level.

The following explains each level in the structure.

SMDR (Storage Management Data Requestor)	The name of the NetWare file server that is running the `SMDR.NLM` used for backups.
TSA (Target Service Agent)	A NetWare software module that prepares the data for backup or restore by the SMDR. There are different types of TSAs, depending on the data.

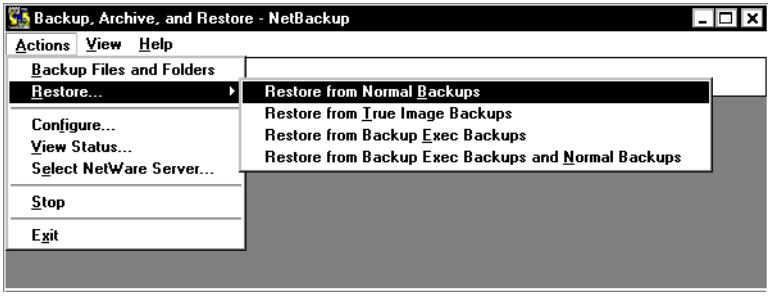
Target Service	The NetWare entity that has the data being handled by the selected TSA. For a DOS Workstation TSA, the display lists the DOS workstations that are running the DOS TSA (`tsasms.com`). In the case of the Netware file system TSA, you will see the systems with NetWare file systems to be backed up. When you first attempt to access a target service during a backup, NetBackup prompts you for the user name and password of the account under which you are performing the backup. During a restore operation, the left pane of the window shows the namespace type for the resources under a target service. The NetBackup Restore window will show the different namespaces only if the backups were performed using the multiple namespaces.
Resources	The specific resources on the selected target service. For example, NetWare file systems on a 5.0 system are Server Specific Information, `SYS:`, and other volumes. The first time you attempt to restore from a resource, NetBackup prompts you for the user name and password of the account under which you are performing the restore.
Directories and Files	The directories and files that are in the selected resource.

Menus

This section explains the menu bar commands on the Backup, Archive, and Restore interface.

Actions Menu

The commands on the **Actions** menu provide overall control of your NetBackup session.



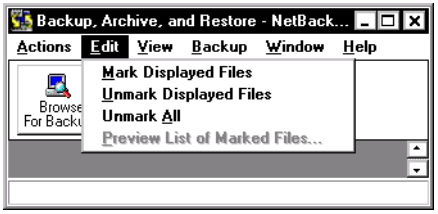
These menu options are available on the File menu.

Backup Files and Folders	Opens the NetBackup Backup window. From this window, you can select files or folders to back up, and then start a backup operation.
Restore	Opens the submenu and provides access to the following commands:
Restore from Normal Backups	Opens a NetBackup Restore window. From this window, you can select files or folders saved during previous backups and start a restore operation.
Restore from True Image Backups	Opens a NetBackup Restore (True Image) window. From this window, you can select files or folders saved during previous true image backups and start a true image restore operation.
Restore from Backup Exec Backups	Opens a NetBackup Restore window. From this window, you can select files or folders saved during previous backups and restore Backup Exec images.
Restore from Backup Exec Backups and Normal Backups	Opens a NetBackup Restore window. From this window, you can select files or folders saved during previous backups and restore both NetBackup and Backup Exec images.
Configure	Opens the NetBackup Configuration dialog box. From this dialog box, you can specify the parameters that control backups and restores for your client.
View Status	Opens the View Status dialog box. From this dialog box, you can review the progress report of a user operation in progress. You can also review logs from past user-directed NetBackup operations.
Select NetWare Server	Opens the Select Servers dialog box. From this box you can select a NetWare server.

Stop	Stops network activities, such as browsing files or folders for restores. This has no affect on a backup or restore that is already in progress.
Exit	Terminates the Backup, Archive, and Restore interface. Any backups or restores in progress will continue to completion.

Edit Menu

This menu is available when either the NetBackup Backup window or the NetBackup Restore window is opened.

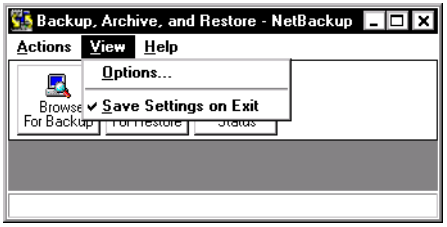


The commands on the **Edit** menu modify your selections in the currently selected backup or restore window.

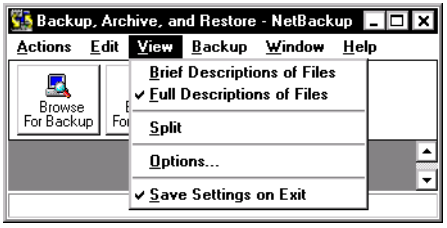
Mark Displayed Files	Marks only the files or folders that currently appear in the Contents of '*<folder>*' pane of the NetBackup Backup window or NetBackup Restore window.
Unmark Displayed Files	Unmarks only the selections that currently appear in the Contents of '*<folder>*' pane of the NetBackup Backup window or NetBackup Restore window.
Unmark All	Unmarks all files or folders in this window. You can also execute this command by clicking the **Unmark All** button on the NetBackup Restore window toolbar or the NetBackup Backup window toolbar.
Preview List of Marked Files	Opens the Preview List dialog box. This command is enabled when files or folders have been selected in the NetBackup Backup window or the NetBackup Restore window. You can also execute this command by clicking **Preview List** on the NetBackup Restore window toolbar or the NetBackup Backup window toolbar.

View Menu

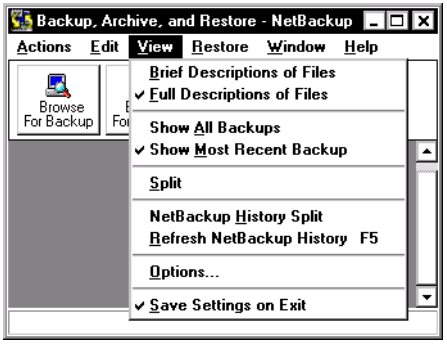
The commands on the **View** menu control the contents of the NetBackup Backup window and the NetBackup Restore window.



During a backup operation, the following menu is available.



During a restore operation, the following menu is available.



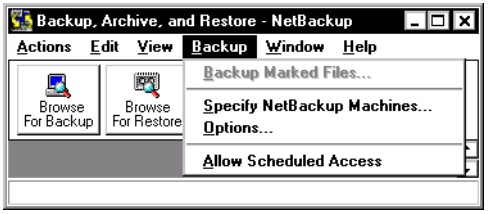
Brief Description of Files Shows files or folders without details. You can also execute this command on the NetBackup Backup window toolbar and on the NetBackup Restore window toolbar.

Full Description of Files Shows file or folder details such as size and file permissions. You can also execute this command on the NetBackup Backup window toolbar and on the NetBackup Restore window toolbar.

Split	Changes the cursor to a double bar with two arrows and positions it over the vertical split bar between the All Folders and Contents of '<*folder*>' panes. You can then move the cursor left or right to position the split bar.
Show All Backups	Shows all instances of files or folders in the currently selected image(s). You can also execute this command on the NetBackup Restore window toolbar.
Show Most Recent Backup	Shows the most recent backup of files or folders from the currently selected backup image(s). You can also execute this command on the NetBackup Restore window toolbar.
NetBackup History Split	Changes the cursor to a double bar with two arrows and positions it over the horizontal split bar between the NetBackup History pane and the All Folders and Contents of '<*folder*>' panes. You can then move the cursor up or down to position the split bar.
Refresh NetBackup History	Updates information in the NetBackup History pane.
Options	Opens the Options dialog box. Go to "Options Dialog Box" on page 76 for more details.
Save Settings on Exit	When selected, this command will save window specific settings upon exit.

Backup Menu

The **Backup** menu is available when the NetBackup Backup window is active. The commands on the **Backup** menu control backup operations.

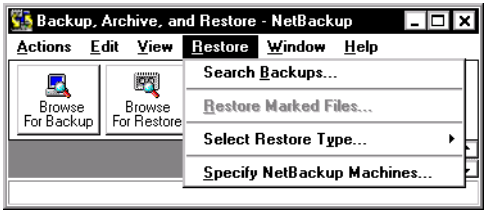


Note NetBackup prompts you for a user name and password the first time you attempt to access a target. Once granted, your permission is valid for that resource until you close the NetBackup Backup window.

Backup Marked Files	Opens the Backup Marked Files dialog box. You can also execute this command by clicking **Backup** on the NetBackup Backup window toolbar.
Specify NetBackup Machines	Opens the NetBackup Backup Options dialog box to the **Servers** tab. Refer to “Servers Tab” on page 79 for more details.
Options	Opens the NetBackup Backup Options dialog box to the **Backups** tab. Refer to “Backups Tab” on page 80 for more details.
Allow Scheduled Access	This entry makes your user ID and password available to the NetBackup server. The NetBackup server requires this information to access the client for scheduled backups. NetBackup will add the selected highlighted information (resource name, namespace, username and password) to the NetWare file server’s `bp.ini` file. This resource will then be backed up, during a scheduled backup, by a NetBackup server that has been configured to do so. If the user has not selected a resource or an item contained in a resource, an error message box displays, indicating that more specific information is needed. If the user selects a resource that is already in the `bp.ini` file, a confirmation box will be opened asking if the user wants to replace the information. To view the current resources, access the **Backups** tab in the NetBackup Configuration dialog box. (See “Backups Tab” on page 68.)

Restore Menu

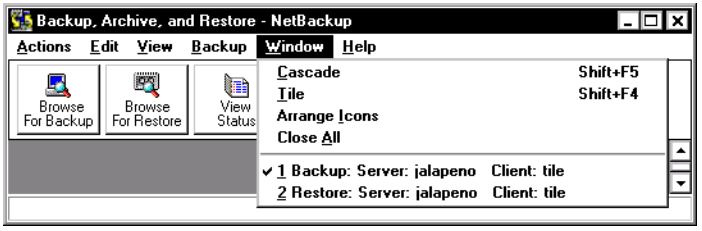
The **Restore** menu appears when the NetBackup Restore window is active. The commands on the **Restore** menu control restore operations.



Search Backups	Opens the Search Backups dialog box. You can also execute this command by clicking **Search Backups** on the NetBackup Restore window toolbar.
Restore Marked Files	Opens the Restore Marked Files dialog box. You can also execute this command by clicking **Restore** on the NetBackup Restore window toolbar.
Select Restore Type	Opens the submenu and provides access to the following commands:
Normal Backups	Opens the NetBackup Restore window. You can select files or folders saved during previous backups and start a restore operation.
True Image Backups	Opens the NetBackup Restore (True Image) window. You can select files or folders and start a true image restore operation.
Backup Exec Backups	Opens the NetBackup Restore window. You can select files or folders saved during previous backups and restore Backup Exec images.
Normal and Backup Exec Backups	Opens the NetBackup Restore window. You can select files or folders saved during previous backups and restore NetBackup and Backup Exec images.
Specify NetBackup Machines	Opens the NetBackup Restore Options dialog box to the **Servers** tab. Refer to “Servers Tab” on page 84 for more details.

Window Menu

The **Window** menu has commands for arranging your NetBackup windows. It becomes available when the NetBackup Backup window or the NetBackup Restore window is opened.



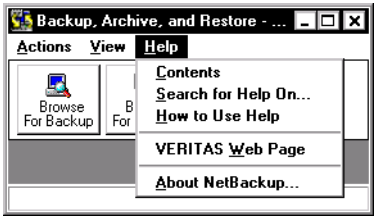
These menu options are available on the Window menu:

Cascade	Arranges NetBackup windows so they overlap, but the title bars will still be visible.

Tile	Reduces the size of NetBackup windows and places them next to one another on the desktop.
Arrange Icons	Arranges icons so they are located in the lower left corner of the desktop.
Close All	Closes the NetBackup Backup windows and the NetBackup Restore windows.

Help Menu

This menu provides access to the online instructions for using NetBackup.



These menu options are available on the Help menu:

Contents	Opens the table of contents in the online help.
Search For Help On	Opens the search facility for the online help.
How to Use Help	Describes how to use the online help.
VERITAS Web Page	Opens the VERITAS Web site in your internet browser.
About NetBackup	Displays information about NetBackup, including the version number.

Windows

This section explains the windows on the Backup, Archive, and Restore interface.

NetBackup Window Icons

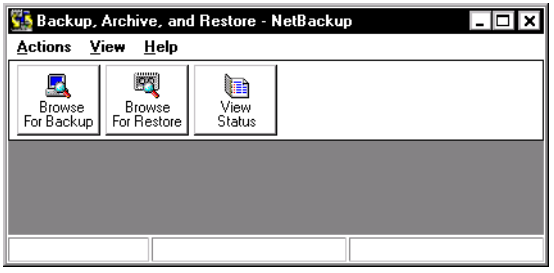
This section describes all icons displayed in the windows.

Icon	Description
	Represents NetBackup. It is used on the title bar in the Backup, Archive, and Restore interface, in the Windows Start menu, and Windows Explorer.
	Represents a backup. It is used on the title bar of the backup window.
	Represents a restore. It is used on the title bar of the restore window.
	Represents a floppy drive. Used in the All Folders pane.
	Represents a logical hard drive. Used in the All Folders pane.
	Represents a CD-ROM drive. Used in the All Folders pane.
	Represents a networked drive. Used in the All Folders pane.
	Represents a client PC or NDS tree. Used in the All Folders pane.
	Expand or collapse these structures to see more or fewer subentries. A plus sign indicates that the folder can be expanded. A minus sign indicates that the folder can be collapsed. Used in the All Folders pane.
	Represents a closed folder that may or may not contain other items. Used in the All Folders pane where only folders are displayed under drives. Also in the Contents of '<*folder*>' pane.
	Represents an opened folder that may or may not contain other items. Used in the All Folders pane where only folders are displayed under drives.
	Represents a NetWare file server that is Storage Management Data Requestor. Used in the All Folders pane and the Contents of '<*folder*>' pane.
	Represents a client PC, NetWare file server, or NDS tree. Used in the All Folders pane and the Contents of '<*folder*>' pane.
	Represents a NetWare Target Service Agent (TSA). Used in the All Folders pane and the Contents of '<*folder*>' pane.
	Represents a NetWare Namespace.

Icon	Description
	Represents a file or a folder, with all of its contents, that has been marked for backup or restore. Used in the All Folders pane and the Contents of '<*folder*>' pane.
	Represents a folder with some of its contents marked for backup or restore. Used in the All Folders pane and the Contents of '<*folder*>' pane.
	Represents a file or folder that has not been marked for backup or restore, but could be. Used in the All Folders pane and the Contents of '<*folder*>' pane.
	Represents an object with all of its contents marked for backup or restore, but the object itself cannot be marked. Used in the All Folders pane and the Contents of '<*folder*>' pane.
	Represents an object with some of its contents marked for backup or restore, but the object itself cannot be marked. Used in the All Folders pane and Contents of '<*folder*>' pane.
	Represents an object that cannot be marked for backup or restore but contains other objects that can be marked for backup or restore. Used in the All Folders pane and Contents of '<*folder*>' pane.
	Represents a folder that wasn't specifically backed up, but at least some of its contents were backed up. Used in the All Folders pane of the NetBackup Restore window.
	Represents a file that doesn't have an icon associated with it. Used in the Contents of '<*folder*>' pane.

Backup, Archive, and Restore Window

This window displays when you start NetBackup.

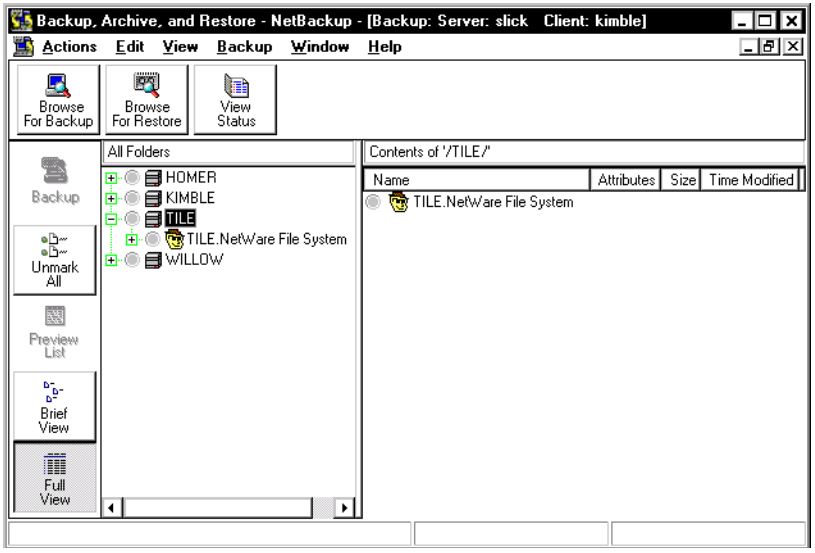


The following buttons appear on the toolbar.

Button	Description
	Opens the NetBackup Backup window.
	Opens the NetBackup Restore window.
	Opens the View Status dialog box.

NetBackup Backup Window

This window shows the files or folders you can mark for back up.



To access this window:

- On the **Actions** menu, click **Backup Files and Folders.**

You can position this window separately. You can also cascade, tile or minimize the window by using commands from the **Window** menu.

Buttons

These buttons are available in the NetBackup Backup window.

Button	Description
	Opens the Backup Marked Files dialog box. From this dialog you can start the backup operation.
	Unmarks all files and folders in this window. You can also execute this command by selecting **Unmark All** from the **Edit** menu.
	Opens the Preview List dialog box during a backup operation. You can also execute this command by selecting **Preview List** from the **Edit** menu.
	Shows files and folders only. You can also execute this command by selecting **Brief Descriptions of Files** from the **View** menu.

Button	Description
	Shows file and folder details such as size and file permissions. You can also execute this command by selecting **Full Descriptions of Files** from the **View** menu.

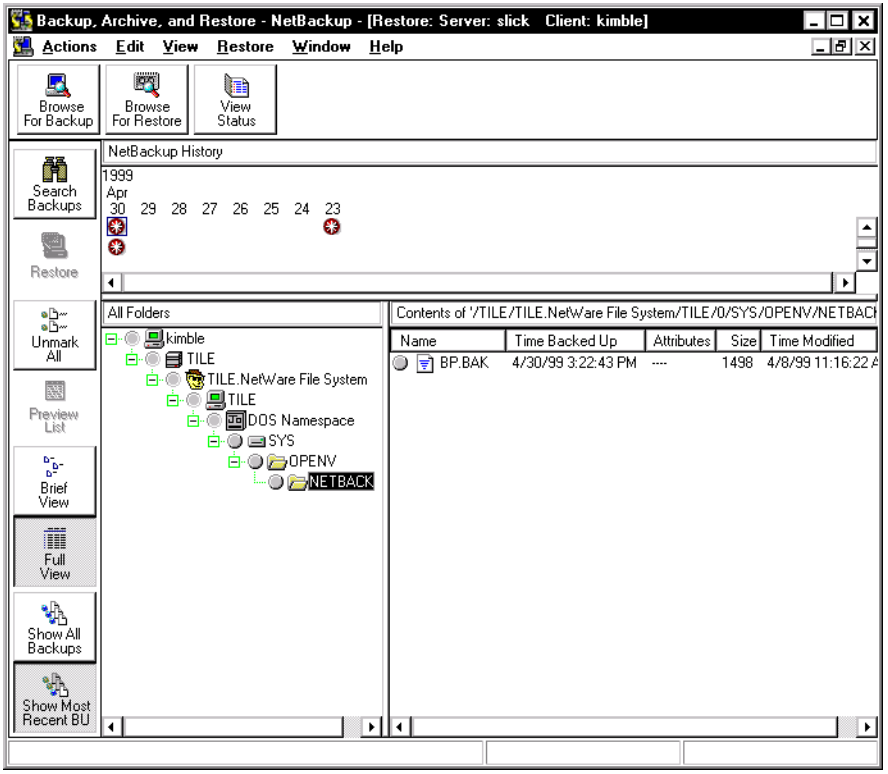
Panes

The NetBackup Backup window contains two panes: All Folders and Contents of '*<folder>*'.

- To adjust the width of the panes, position the cursor over the split bar. The cursor will change to a double-headed arrow. Press the left mouse button and move the cursor left or right to position the split bar.

NetBackup Restore Window

This window shows the files or folders that you can mark for restore.



To access this window:

- On the **Actions** menu, click **Restore**, then click the desired type of restore.

The folder trees in this window contain only files and folders that were backed up. You can position this window separately. You can also cascade, tile, or minimize the window by using commands from the **Window** menu.

Notes:

- If the client belongs to more than one policy, the default display starts with the last full backup that occurred first. For example, assume that the client belongs to Policy A and Policy B and full backups occur for both of them. If the last full backup for Policy A occurred before the one for Policy B, then the display shows files ranging from the time of the Policy A full backup.
- If you are restoring from a true image backup, the NetBackup Restore window shows only the folders that were included in true image backups. Files do not appear in this window because you cannot select individual files for a true image restore.

Buttons

These buttons are available on the NetBackup Restore window:

Button	Description
	Opens the Search Backups dialog box.
	Opens the Restore Marked Files dialog box. From this dialog you can start the restore operation.
	Unmarks all files or folders in this window. You can also execute this command by selecting **Unmark All** from the **Edit** menu.
	Opens the Preview List dialog box during a restore operation. You can also execute this command by selecting **Preview List of Marked Files** from the **Edit** menu.
	Shows files and folders only. You can also execute this command by selecting **Brief Descriptions of Files** from the **View** menu.
	Shows file and folder details such as size and file permissions. You can also execute this command by selecting **Full Descriptions of Files** from the **View** menu.
	Shows all instances of the files or folders in the currently selected image(s). You can also execute this command by selecting **Show All Backups** from the **View** menu.

Button	Description
	Shows the most recent backup of files or folders in the selected backup images. You can also execute this command by selecting **Show Most Recent Backup** from the **View** menu.

Panes

The NetBackup Restore window is split into three panes: the NetBackup History pane on the top, the All Folders pane on the left and the Contents of '*<folder>*' pane on the right.

- To adjust the height of the NetBackup History pane, position the cursor over the horizontal split bar. The cursor will change to a double bar with two arrows. Press the left mouse button and move the cursor up or down to position the split bar.
- To adjust the width of the All Folders pane and the Contents of '*<folder>*' pane, position the cursor over the vertical split bar. The cursor will change to a double bar with two arrows. Press the left mouse button and move the cursor left or right to position the split bar.

NetBackup History Pane

The NetBackup History pane shows the NetBackup image(s). When first opened, the following backup images are selected by default:

- The most recent full backup.
- All cumulative-incremental backups and differential-incremental backups that have occurred since the most recent full backup.
- All user-directed backups that have occurred since the most recent full backup.

If there is no full backup, only the most recent image will be selected.

▼ To Open the NetBackup History Pane

- Position the cursor over the horizontal split bar. The cursor will change to a double-headed arrow. Press the left mouse button and move the cursor up or down to position the split bar.

  or

- On the **View** menu, click **NetBackup History Split**. This changes the cursor to a double-headed arrow. Move the cursor up or down to position the split bar. Click the left mouse button to hold position.

▼ Backup History as a Detailed List

To show the NetBackup History pane as a detailed list, clear the **Show NetBackup History as a Timeline** option in the Options dialog box. The list starts with the most recent backup and includes the following information (reading from left to right).

- Date and time when the backup occurred.
- Date when NetBackup will expire the backup and delete it from the NetBackup History pane.
- Number of files in the backup.
- Size of the backup in kilobytes.
- Whether the backup is compressed (Y for yes, N for no).

Note Netware 4.x and greater allows users to specify if files should be compressed. NetBackup will back up the file as it finds it. If the file is compressed, it will be backed up in compressed format. After a restore the file will still be compressed.

Note NetWare 3.12 does not support compression. If a compressed file is restored to a NetWare 3.12 machine, the operating system cannot uncompress it. Select the **Uncompress files before backing up** option for machines that do not support compression (see “General Tab” on page 60).

- Type of schedule.
- Name of the policy associated with the backup. The system administrator configures the policy names, as explained in the *NetBackup System Administrator’s Guide for UNIX* or the *NetBackup System Administrator’s Guide for Windows*.
- Keyword assigned to the backup.

Dialog Boxes

This section describes the dialog boxes used in the Backup, Archive, and Restore interface.

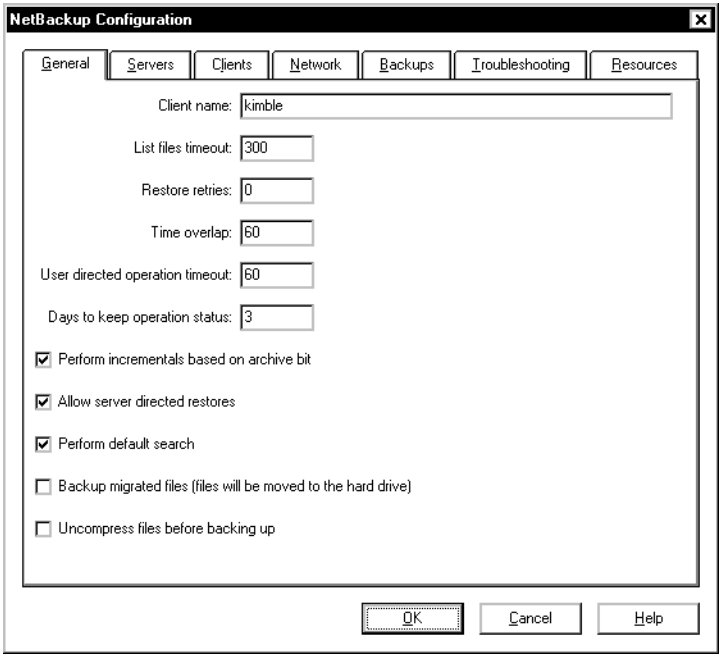
NetBackup Configuration Dialog Box

This section contains information on the NetBackup Configuration dialog box for the system administrator.

Configuration information is kept on the NetWare server in the `BP.INI` file.

General Tab

Use this tab to set any of the configuration parameters for your client.



To access this tab:

1. On the **File** menu, click **Configure**.
2. Click the **General** tab.

Client name Specify the NetBackup client name of your client. This name is used when backing up and restoring files or folders. The client name in the NetBackup server policy configuration must match the client name specified here.

List files timeout Specify the number of seconds to wait for a response from the NetBackup master server when listing files. If this amount of time is exceeded, the user receives the "socket read failed" error even if the server is still processing the user's request.

The default is 300 seconds. The minimum setting is 0. The maximum setting is 36,000 seconds.

Restore retries Specify the number of times to retry a restore after a failure.

The default is 0, which is no retries. The maximum setting is 999.

Time overlap Specify the extra number of minutes to add to the date range for incremental backups when using date-based backups. This value can be used to compensate for differences in the speed of the clock between the client and NetBackup server.

The default is 60 minutes. The minimum setting is 0. The maximum setting is 1,440 minutes.

User-directed operation timeout Specify the number of seconds to wait for a response from the NetBackup master server when performing user-directed operations. If this amount of time is exceeded, the user receives the "socket read failed" error even if the server is still processing the user's request.

The default is 60 seconds. The minimum setting is 0. The maximum setting is 32,400 seconds.

Days to keep operation status Specify the number of days to store progress reports before the system will automatically delete them.

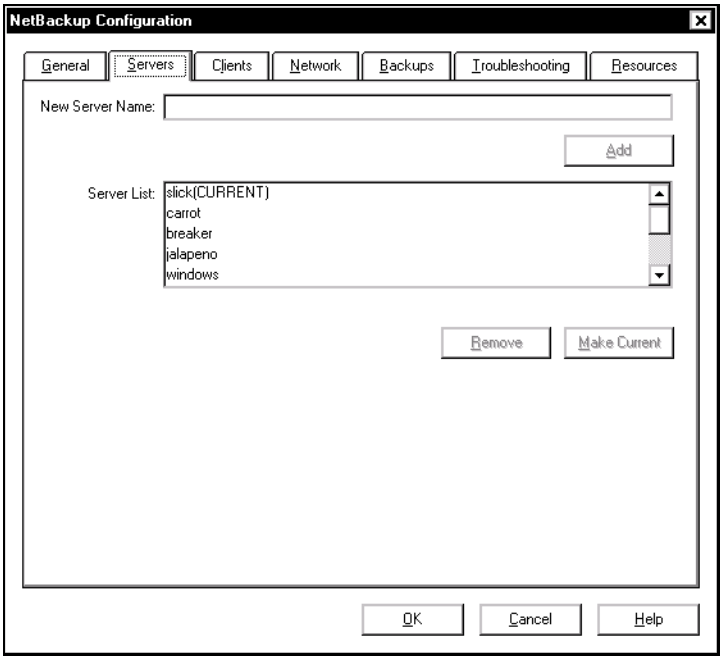
Default is 3 days. The minimum allowable value is 0. The maximum is 9,999.

Perform incrementals based on archive bit	Select this check box to have NetBackup include files in an incremental backup only if their archive bit is set. The system sets this bit whenever a file is changed and it will remain set until NetBackup clears it. A full backup always clears the archive bit. A differential-incremental backup clears the archive bit if all files are successfully backed up and the NetBackup master server responds back to the client within the number of seconds indicated by the `Clear_Archive_Bit_Incr_Wait` parameter. A cumulative-incremental backup or user backup has no effect on the archive bit. Clear this checkbox to have NetBackup include a file in an incremental backup only if the file's datetime stamp has been changed since the last backup. For a cumulative-incremental backup, NetBackup compares the file's time stamp against the last full backup. For a differential-incremental backup, NetBackup compares the time stamp against the last full backup or incremental backup. If you install or copy files from another computer, the new files retain the datetime stamp of the originals. If the original date is before the last backup date on this computer, then the new files will not be backed up until the next full backup, whichever is most recent.
Allow server directed restores	Select this check box to let the administrator on the NetBackup server initiate restores to this client. The default is to allow server-directed restores.
Perform default search	If selected, NetBackup will automatically search the default range of backup images and display the backed up folders and files whenever a restore window is opened. Clear this box to disable the initial search. The NetBackup Restore window will not show any files or folders when initially opened. Clicking a backup image, or selecting a range of backup images, will initiate a search. By default, this box is selected.
Backup migrated files	If selected, files that have been moved to secondary storage will be moved back to primary storage and backed up by NetBackup. If the option is not selected (the default) only the metadata for the file is backed up and the file is not moved back to primary storage.
Uncompress files before backing up	If selected, compressed files will be uncompressed before backing up. This is useful if the file will be restored to a version on NetWare that does not support compression. If the option is not selected (the default) the file will be backed up in its compressed state.
OK	To accept changes to the parameters, click this button.

Cancel	To cancel and return to the previous display without accepting changes to the parameters in this dialog box, click this button.
Help	To view online help for this dialog box, click this button.

Servers Tab

Use this tab to add and remove NetBackup servers and to specify the current server to be used for user operations.



To access this tab:

1. On the **Actions** menu, choose **Configure**.
2. Click on the **Servers** tab.

New Server Name	To add another NetBackup server to the **Server List**, type the name of the new server in the **New Server Name** text box and click **Add**. The name must be as defined by the system administrator on that server.
Add	Click this button to add a server to the Server List.

Server List Shows the names of the NetBackup servers that require access to the client for scheduled backups, and any other servers used when performing user-directed backups. The master server and any remote media servers that perform scheduled backups of the client must appear in this list. The machine designated as CURRENT will be the server used for user-directed operations.

To mark a server as CURRENT, select a server from the **Server List** and click **Make Current**. The word CURRENT appears in parentheses beside the name.

Caution Be careful about removing servers from the list, as it may cause scheduled backups to fail.

Remove Removes a server. First highlight the server in the **Server List**, then click **Remove**.

Make Current Used to make the selected server the current server. Highlight the server in the **Server List**, then click **Make Current**.

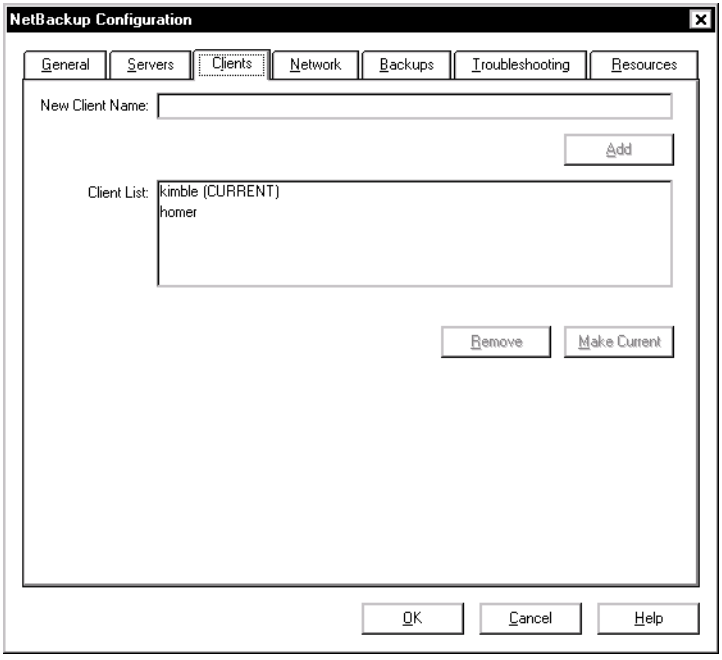
OK To accept changes to the parameters, click this button.

Cancel To cancel and return to the previous display without accepting changes to the parameters in this dialog box, click this button.

Help To view online help for this dialog box, click this button.

Clients Tab

Use this tab to select the remote client whose backups you want to restore to your client. You can also add names of remote clients.



To access this tab:

1. From the **Actions** menu, select **Configure**.
2. Select the **Clients** tab.

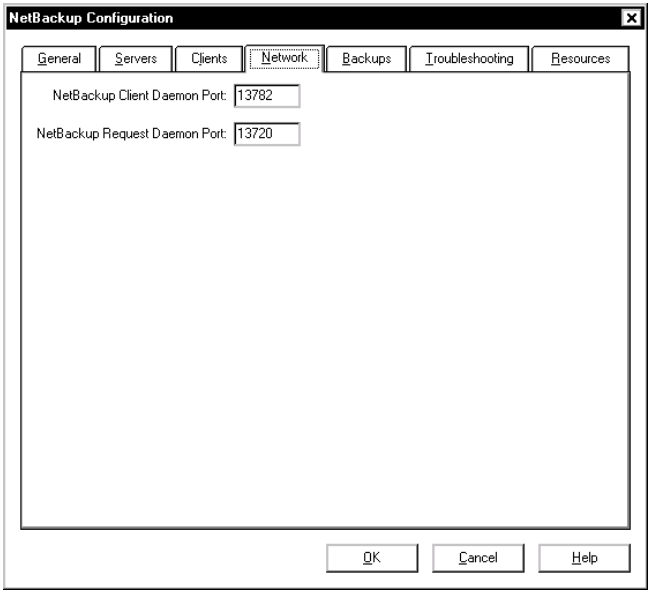
Note Most changes made to the this tab will not apply to currently open backup or restore windows. If, however, a client is added, the open windows will be able to switch to them.

New Client Name	To add another client name to the **Client List**, type the name of the client in the **New Client Name** box and click **Add**. The client name entered must also be defined in a policy on the NetBackup server.
Add	Adds the client, entered in the **New Client Name** box, to the **Client List**.

Client List	The **Client List** contains the client name for your computer. It can also contain the names of remote NetBackup clients. You can select local or remote NetBackup clients on which to perform NetBackup operations. The NetBackup server administrator must set up the required permissions before you can browse and restore from any remote client. To perform a NetBackup operation on a NetBackup client, select the name from the **Client List** and click **Make Current**. The word CURRENT appears in parentheses beside the name of the new default client.
Remove	Removes a client. First highlight the client in the **Client List**, then click **Remove**.
Make Current	Designates the client backup images you can browse for restore operations. First highlight the client in the **Client List**, then click **Make Current**.
OK	To accept changes to the parameters, click this button.
Cancel	To cancel and return to the previous display without accepting changes to the parameters in this dialog box, click this button.
Help	To view online help for this dialog box, click this button.

Network Tab

Use this tab to view and change the port numbers used during communications between your client and the NetBackup master server.



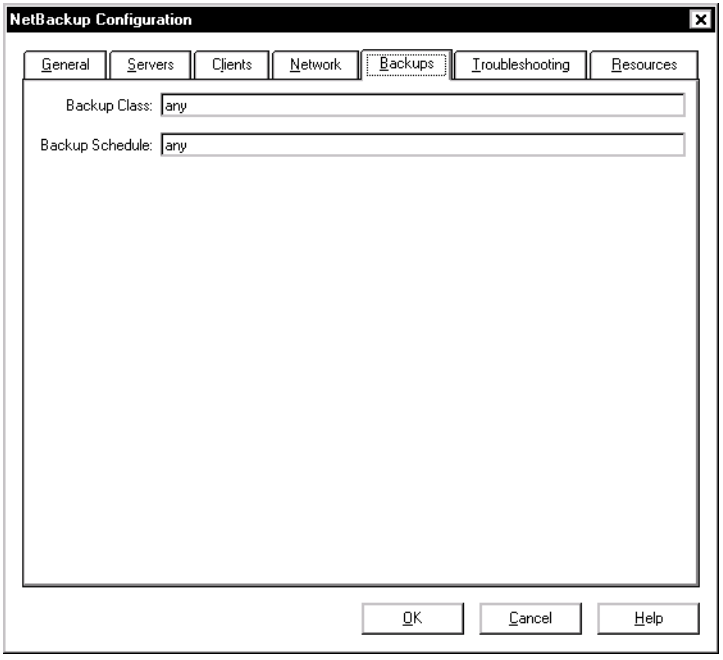
To access this tab:

1. On the **File** menu, click **Configure**.
2. Click the **Network** tab.

NetBackup Client Daemon Port	Specify the port the NetBackup server uses to communicate with the NetBackup client. The default is 13782.
NetBackup Request Daemon Port	Specify the port to which the client should send requests to the NetBackup request service, `bprd`, on the NetBackup server. The default is 13720.
OK	To accept changes to the parameters, click this button.
Cancel	To cancel and return to the previous display without accepting changes to the parameters in this dialog box, click this button.
Help	To view online help for this dialog box, click this button.

Backups Tab

Use this tab to specify the policies and schedules to use when you start a backup from the client.



To access this tab:

1. On the **Actions** menu, click **Configure**.
2. Click the **Backups** tab.

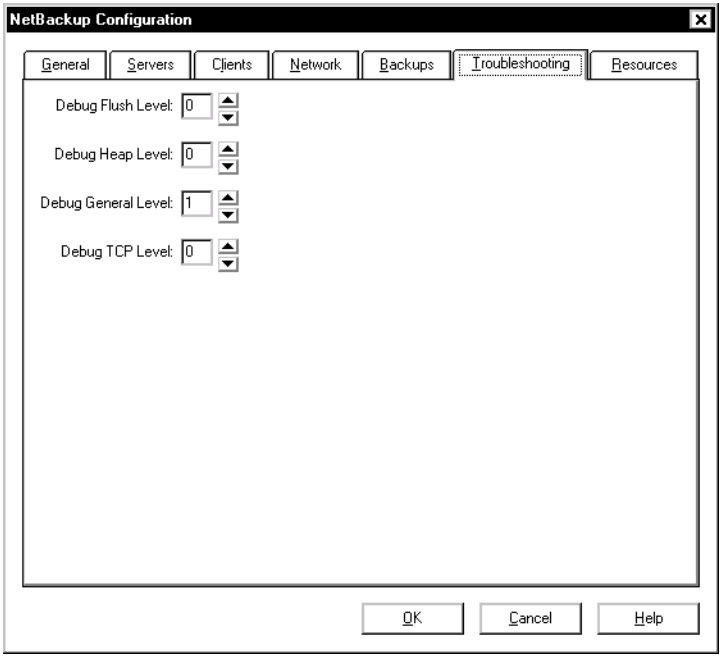
Note Changes made to this tab will not apply to currently open backup windows. The changes will apply to all backup windows opened after the tab modifications have been saved.

Backup Class Specify the policy to use for user-directed backups of this client. If you set this value to “any” (which is the default), NetBackup uses the first policy that it finds with both the client name and a user-directed backup schedule.

Backup Schedule	Specify the schedule to use for the user-directed backups for this client. If you set this value to "any" (which is the default), NetBackup uses the first user-directed backup schedule in the first policy that it finds with both the client name and a user-directed backup schedule.
OK	To accept changes to the parameters, click this button.
Cancel	To cancel and return to the previous display without accepting changes to the parameters in this dialog box, click this button.
Help	To view online help for this dialog box, click this button.

Troubleshooting Tab

Use this tab to view and change the amount of information that NetBackup saves in its debug / troubleshooting logs. NetBackup only creates log files if the log folders are created. For more details on the BPCD logs, refer to "BPCD Log" on page 71. Also see the *NetBackup Troubleshooting Guide for UNIX* or the *NetBackup Troubleshooting Guide for Windows* for information on using these logs.



To access this tab:

1. On the **File** menu, click **Configure**.
2. Click the **Troubleshooting** tab.

Note Troubleshooting logs can consume a lot of disk space. Delete them when they are no longer needed.

Debug Flush Level	NetBackup periodically flushes the progress reports on NetBackup operations. This setting specifies the frequency of the flushes or how often the internal buffer gets written to the progress report. The higher the flush level, the more often the buffer is written to the file. Supported values are 0, 1 or 2. The default is 0. Changing the level takes affect during the next backup or restore. The `bpcd` NLM does NOT need to be unloaded and loaded for changes to take affect.
Debug Heap Level	This parameter is not used in NetBackup 4.5.
Debug General Level	Controls the amount of information that NetBackup writes to the troubleshooting logs. Supported values are 0, 1, or 2. The higher the level, the more information is written. The default is 0. Changing the level takes affect during the next backup or restore. The `bpcd` NLM does NOT need to be unloaded and loaded for changes to take affect.
Debug TCP Level	Used for debug purposes and enables TCP debugging. Supported values are: 0 No extra logging. This is the default. 1 Log basic TCP / IP functions. 2 Log all TCP / IP functions, including all read and write requests. 3 Log contents of each read / write buffer. **Note:** Setting **Debug TCP Level** to 2 or 3 can cause the status reports to be very large. It can also slow performance of a backup or restore operation. Changing the level takes affect during the next backup or restore. Changing the TCP debug value does not take affect until the `bpcd` NLM is unloaded and loaded.
OK	To accept changes to the parameters, click this button.
Cancel	To cancel and return to the previous display without accepting changes to the parameters in this dialog box, click this button.

Help To view online help for this dialog box, click this button.

BPCD Log

NetBackup will generate troubleshooting logs only if you create the following folders on your client.

```
SYS:
  \Openv
    \NETBACK
      \logs
        \BPCD
        \bp
        \bpback
        \bprest
        \bpsrv
        \user_ops
```

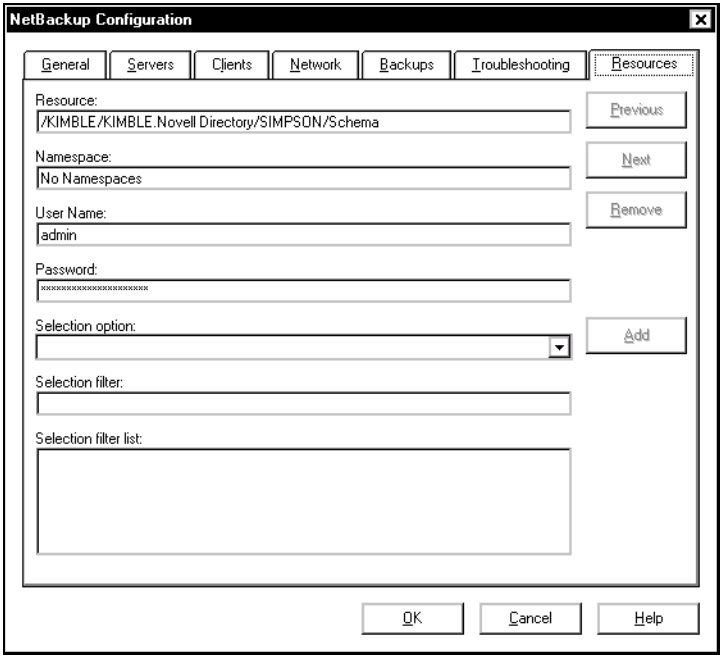
All log files use the format `yymmdd.LOG`.

`BPCD`	Log files in this folder have information useful for troubleshooting communications between your NetBackup client and the NetBackup server.
`bp`	Log files in this folder have information on the `bp.nlm` interface.
`bpback`	Log files in this folder have information from user-directed backups using `bp.nlm`.
`bprest`	Log files in this folder have information from user-directed restores using `bp.nlm`.
`bpsrv`	Log files in this folder have information on communications between the NetWare server and the NetWare client, pertaining to NetBackup.
`user_ops`	Log files in this folder are the progress logs that are generated during a user-directed backup or restore.

Note If you use Notepad to view the log files, the file will appear as one long line. Wordpad recognizes the line breaks and properly displays the lines.

Resources Tab

Use this tab to configure the NetWare file server, configured as a NetBackup client, or the NetWare client PCs connected to that NetWare file server.



To access this tab:

1. From the **Actions** menu, select **Configure**.
2. Click the **Resources** tab.

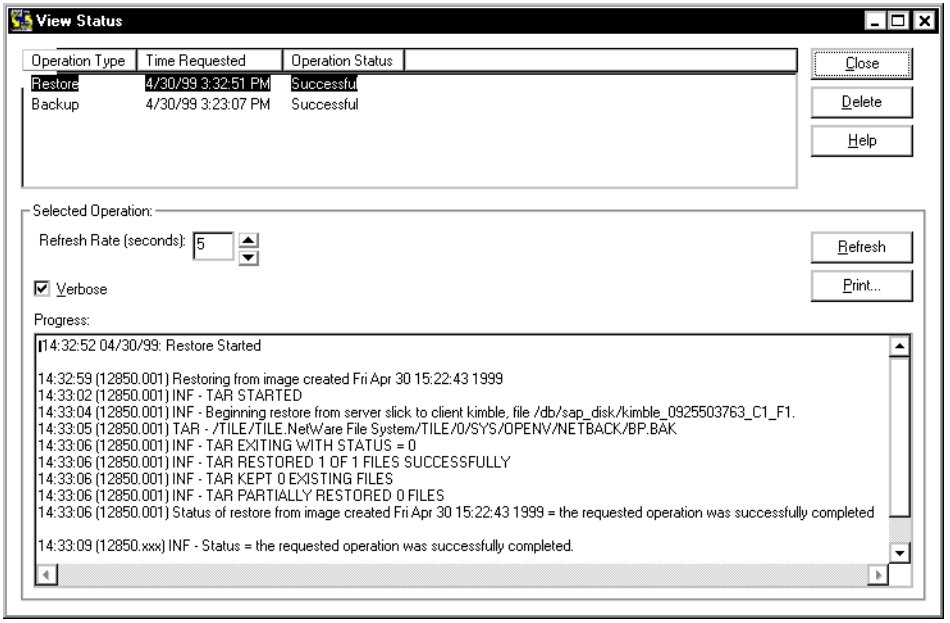
Resource — Shows the resource. Use the **Previous** and **Next** buttons to browse the list of resources (you cannot edit this field). The **Namespace** text box also changes, as necessary, to show the namespace for the currently displayed resource. To delete a resource from the list, click **Next** or **Previous** as necessary to display it in the **Resource** text box and then click **Remove**.

Namespace — Shows the namespace for the currently displayed resource (you cannot edit this field). The possible values are: No Namespaces, Directory Namespace, DOS Namespace, FTAM Namespace, NFS Namespace, Macintosh Namespace, OS2 Namespace.

User Name	Shows the user name that the server will use to back up the currently displayed resource (you cannot edit this field). For example, if the value is "supervisor," then the server must perform the backup as the supervisor.
Password	Shows the password that the server will use with **User Name** in order to back up the currently displayed resource (you cannot edit this field).
Previous	Use this button to show the previously displayed resource in the list.
Next	Use this button to change the contents of the **Resource** text box to show the next resource in the list.
Remove	Use this button to delete a the currently visible resource.
Selection option	Select an item from a list to exclude or include objects from a server-directed backup.
Selection filter	Enter name of object to be excluded or included. Wildcard characters can be used.
Selection filter list	Shows the object to be excluded or included.
Add	After entering a selection filter, click **Add** to add the new filter to the Selection Filter list.
OK	To accept changes to the parameters, click this button.
Cancel	To cancel and return to the previous display without accepting changes to the parameters in this dialog box, click this button.
Help	To view online help for this dialog box, click this button.

View Status Dialog Box

Use this dialog box to view the results of each user operation in a progress report.



To access this dialog box:

- On the **Actions** menu, click **View Status**.

Note If a backup is split across more than one media ID, the **Status** lists all the media. NetBackup uses only what it needs to restore the requested files or folders.

Operations List — Lists operation status reports for NetBackup operations. The most current NetBackup operation is on top of the list.

By default NetBackup operation status reports will be stored on the NetBackup client for three days. Refer to "General Tab" on page 60 for more information on changing the configuration setting called **Days to keep operation status**.

Operation Type — Shows the type of NetBackup operation for the selected progress report: Backup, Archive, or Restore.

Time Requested — Shows the start date and time of the selected NetBackup operation. The format of the start date and time depends upon how the date and time display has been configured on the computer.

Operation Status Shows the status of a NetBackup operation.

Close Closes the dialog box. **Close** does not terminate NetBackup or affect other dialog boxes or windows.

Delete Deletes the progress report selected in the Operations List. First select the progress report in the Operations List then click **Delete**.

Operation status reports are automatically deleted after a specified number of days. The **Days to keep operation status** parameter in the **General** tab in the Configure dialog box specifies the number of days.

Help To view online help for this dialog box, click this button.

Refresh Rate (seconds) Changes the rate at which NetBackup updates the **Status** display for the selected operation. Recommended value is 10. This parameter can be set at any time during a NetBackup operation. A value of 0 turns off automatic refreshing.

Verbose Displays a more detailed progress report for the selected NetBackup operation.

Refresh Updates the status display for the selected NetBackup operation. **Refresh** is enabled when a NetBackup operation is selected from the Operations List.

Print Opens the Microsoft Windows print dialog box and prints out the progress report for the selected NetBackup operation.

Progress Displays the progress of the selected operation. If the **Refresh Rate (seconds)** parameter is set to 0, the user can click **Refresh** to view the progress of the selected NetBackup operation. Select **Verbose** for a more detailed progress report.

Each message begins with the time of the related event and an acronym that indicates the nature of the message (see below). **Operation Status** also lists all the media IDs used to store the data.

`DAT` Informational messages that are helpful in debugging.

`ERR` Error message

`FTL` Fatal error message

`INF` Informational message (no error occurred)

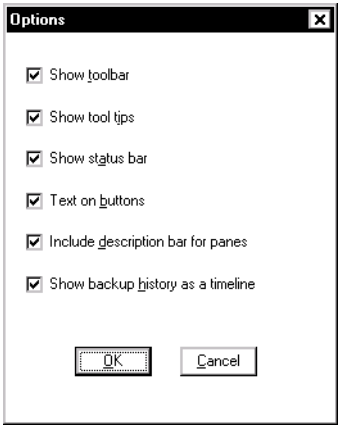
`TRV` Trivial error message

`WRN` Warning error message

Note If the drive on which NetBackup is installed is full, no progress messages are displayed except those indicating the job has been initiated and the job has been completed.

Options Dialog Box

Use this dialog box to control display options on the Backup, Archive, and Restore interface.



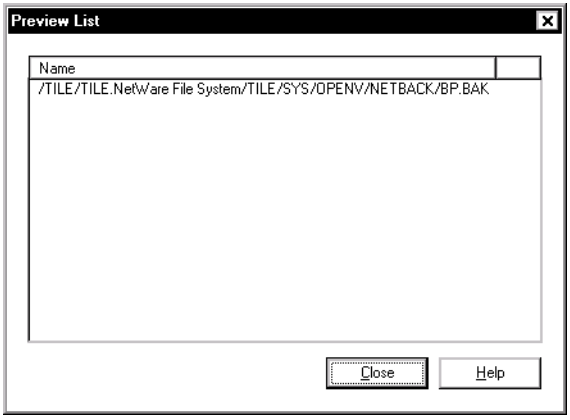
To access this dialog box:

- On the **View** menu, click **Options**.

Show toolbar	Shows the NetBackup toolbars.
Show tool tips	Shows tool tips. When the mouse pointer moves over the different elements of the Backup and Restore interface, the tool tips appear.
Show status bar	Select this feature to display the NetBackup toolbar.
Text on buttons	When selected, text is shown on the toolbar buttons.
Include description bar for panes	Shows the description bars on the backup and restore window panes. Clear this check box to turn off the description bars.
Show backup history as a timeline	Displays the NetBackup History pane as a timeline. To show the NetBackup History pane as a detailed list, clear this checkbox.
OK	To accept changes to the parameters, click this button.
Cancel	To cancel and return to the previous display without accepting changes to the parameters in this dialog box, click this button.

Preview List Dialog Box

Use this dialog box to view all of the files or folders you have marked. This is a view-only dialog box.



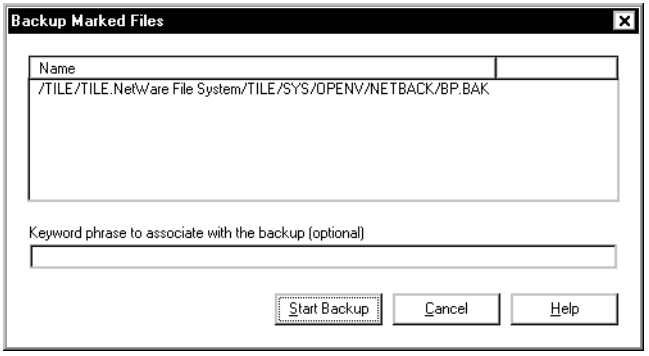
To access this dialog box:

- From the **Edit** menu, select **Preview List of Marked Files**. The Preview List dialog box which appears depends upon whether the backup or restore window is the active window.

Name	When a Backup window is open, a list of the files or folders to be backed up is displayed. When a Restore window is open, a list of the files or folders to be restored is displayed.
Close	Closes the dialog box. **Close** does not terminate NetBackup or affect other dialog boxes or windows.
Help	To view online help for this dialog box, click this button.

Backup Marked Files Dialog Box

Use this dialog box to view your selections before proceeding with the operation.



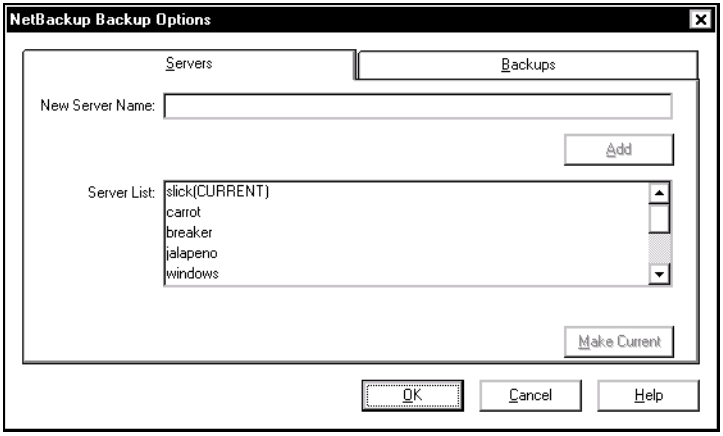
This dialog box displays after you have initiated a backup.

List box	Contains a list of objects to be backed up.
Keyword phrase to associate with the backup	Specifies a keyword phrase, up to 128 characters in length, that NetBackup will associate with the image created by this backup operation. You can then restore the image by specifying the keyword phrase in the Search Backups dialog box. All printable characters are permitted including space (" ") and period (."). The default keyword phrase is the null (empty) string.
Start Backup	Initiates the backup operation.
Cancel	To cancel and return to the previous display without accepting changes to the parameters in this dialog box, click this button.
Help	To view online help for this dialog box, click this button.

NetBackup Backup Options Dialog Box

Servers Tab

Use this tab to add servers and change the current server (master server).



To access this tab:

- From the **Backup** menu choose **Specify NetBackup Machines**.

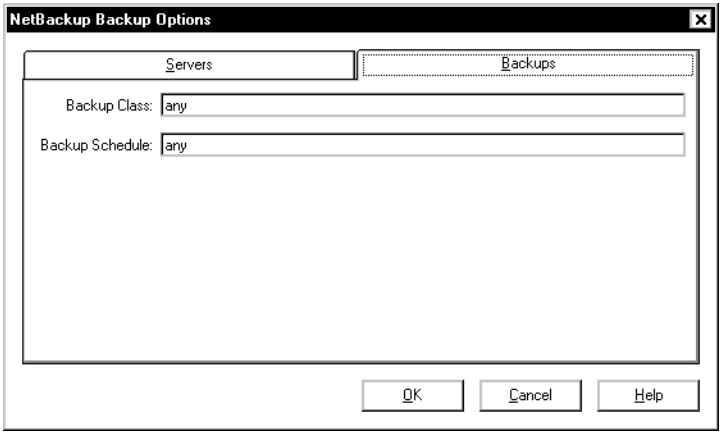
Note Modifications made in this dialog box affect only the currently active window, and will not be saved after closing this NetBackup Backup window.

New Server Name	To add another NetBackup server to the **Server List**, type the name of the new server in the **New Server Name** text box and click **Add**. The name must be as defined by the system administrator on that server.
Add	Click this button to add a server to the Server List.

Server List	Shows the names of the NetBackup servers that require access to the client for scheduled backups, and any other servers used when performing user-directed backups. The master server and any remote media servers that perform scheduled backups of the client must appear in this list. The machine designated as CURRENT will be the server used for user-directed operations. To mark a server as CURRENT, select a server from the **Server List** and click **Make Current**. The word CURRENT appears in parentheses beside the name. To remove a server from this list, see the "Servers Tab" on page 63.
Make Current	First highlight the server in the **Server List**, then click **Make Current**.
OK	To accept changes to the parameters, click this button.
Cancel	To cancel and return to the previous display without accepting changes to the parameters in this dialog box, click this button.
Help	To view online help for this dialog box, click this button.

Backups Tab

Use this tab to specify a specific policy and schedule to use when you start a backup from the client.



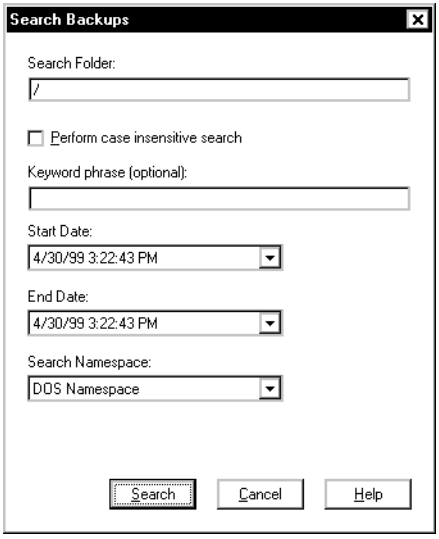
To access this tab:

1. Open a Backup window.
2. On the **Backup** menu, click **Specify NetBackup Machines**.

Backup Class	Specify the policy to use for user-directed backups of this client. If you set this value to “any” (which is the default), NetBackup uses the first policy that it finds with both the client name and a user-directed backup schedule.
Backup Schedule	Specify the schedule to use for the user-directed backups for this client. If you set this value to “any” (which is the default), NetBackup uses the first user-directed backup schedule in the first policy that it finds with both the client name and a user-directed backup schedule.
OK	To accept changes to the parameters, click this button.
Cancel	To cancel and return to the previous display without accepting changes to the parameters in this dialog box, click this button.
Help	To view online help for this dialog box, click this button.

Search Backups Dialog Box

Use this dialog box to narrow the backup history search parameters for a restore.



To access this dialog box:

1. Open a Restore window.
2. From the **Restore** menu, click **Search Backups**.

Search Folder Shows the folder for which you are searching. The initial value for the **Search Folder** is ":\". If you select a folder in the NetBackup Restore window, that folder becomes the new default.

To change the path, enter a new value and press Return.

If you enter a full path name, NetBackup will search for the specific path and file in the selected backup images. Or you can enter only the filename (`csb.tmp` or `*.tmp`) and NetBackup will show, in the All Folders pane, the folders where the specified files were found.

You can use these wildcard characters:

*

?

Tip Before initiating a search, collapse the tree in the All Folders pane as much as possible. NetBackup will expand the tree to the folders that match your search criteria.

Perform case insensitive search Select **Perform case insensitive search** to perform case-insensitive searches.

The search path is case sensitive and must match what is in the database on the NetBackup server. By default the checkbox is checked.

Keyword Phrase (optional) Enter a keyword phrase associated with a backup image.

Start Date and **End Date** View and select the **Start Date** and the **End Date**. The **Start Date** and **End Date** show the range of backups that NetBackup will search. By default, the start date will be the time of the last full backup and the end date will be the time of the most recent backup.

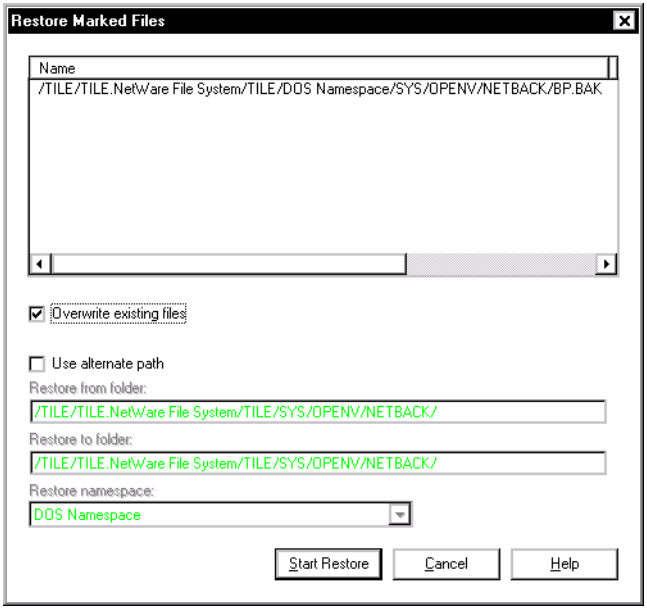
To change the dates, click in the box and select from the list of available backup images.

If you change the **Start Date** or **End Date**, NetBackup clears all the restore selections that you have previously made.

Search Namespace	Enter the namespace for the resource. The possible values are: No Namespaces, Directory Namespace, DOS Namespace, FTAM Namespace, NFS Namespace, Macintosh Namespace, OS2 Namespace.
Search	Initiates a search for specified files or folders. The NetBackup Restore window will show the folders that match the search criteria.
Cancel	To cancel and return to the previous display without accepting changes to the parameters in this dialog box, click this button.
Help	To view online help for this dialog box, click this button.

Restore Marked Files Dialog Box

This dialog box appears after you have initiated a restore operation.



Use this dialog box to view your selections before proceeding with the operation. If the list is longer than the list box, a vertical scroll bar appears along the right edge of the pane.

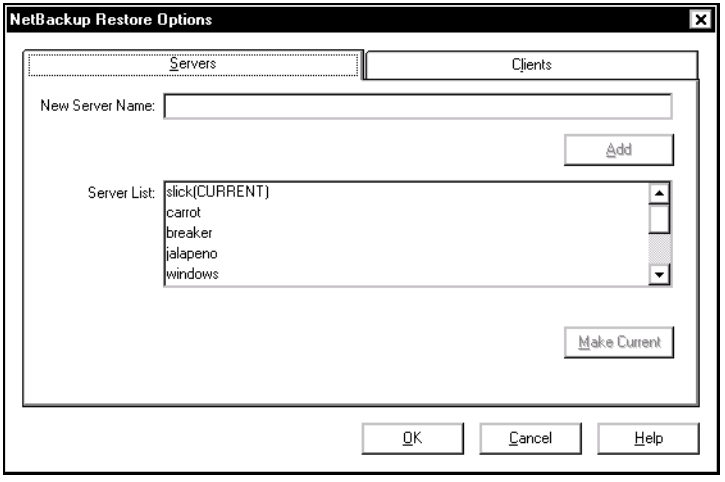
Name	Lists the names of the files or folders marked for restore.
Overwrite existing files	Overwrites existing files or folders. The default is to not overwrite. In this mode, the restore does not occur if the files or folders exist.

Use alternate path	Select this check box if you want NetBackup to restore files to a different path on your computer. If redirecting a restore from a Backup Exec image to a different client use the format: `/NOVELL1/NOVELL1.NetWare File System/NOVELL1/Volume_Name:/Directory1`
Restore from folder	Enter the path from which files and/or folders were backed up.
Restore to folder	Enter the path to the folder to which you want to restore files.
Restore namespace	Select the namespace for the alternate resource. The possible values are: No Namespaces, Directory Namespace, DOS Namespace, FTAM Namespace, NFS Namespace, Macintosh Namespace, OS2 Namespace.
Start Restore	Initiates the restore operation.
Cancel	To cancel and return to the previous display without accepting changes to the parameters in this dialog box, click this button.
Help	To view online help for this dialog box, click this button.

NetBackup Restore Options Dialog Box

Servers Tab

Use this tab to select the master server for the client backups you want to restore.



To access this tab:

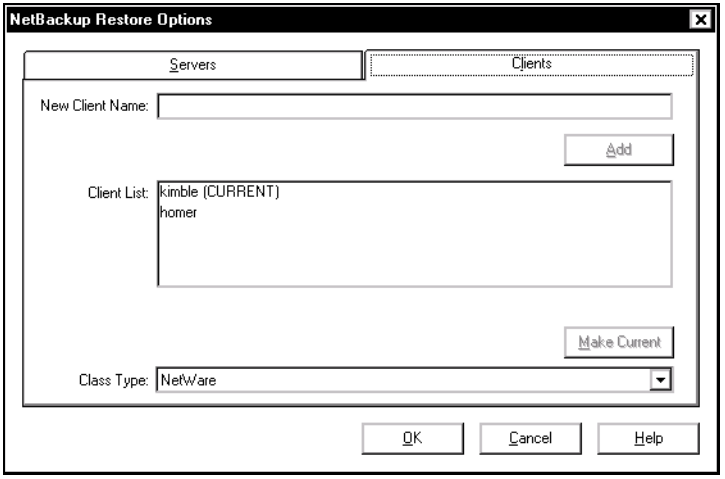
1. From the **Restore** menu choose **Options**.
2. Click the **Servers** tab.

Note Modifications made in this dialog box only affect the currently active window. Changes made in this dialog box will not be saved after closing this NetBackup Restore window.

New Server Name	To add another NetBackup server to the **Server List**, type the name of the new server in the **New Server Name** text box and click **Add**. The name must be as defined by the system administrator on that server.
Add	Click this button to add a server to the Server List.
Server List	Shows the names of the NetBackup servers that require access to the client for scheduled backups, and any other servers used when performing user-directed backups. The master server and any remote media servers that perform scheduled backups of the client must appear in this list. The machine designated as CURRENT will be the server used for user-directed operations. To mark a server as CURRENT, select a server from the **Server List** and click **Make Current**. The word CURRENT appears in parentheses beside the name. To remove a server from this list, see the “Servers Tab” on page 63.
Make Current	First highlight the server in the **Server List**, then click **Make Current**.
OK	To accept changes to the parameters, click this button.
Cancel	To cancel and return to the previous display without accepting changes to the parameters in this dialog box, click this button.
Help	To view online help for this dialog box, click this button.

Clients Tab

Use this tab to select the client backups you want to restore.



To access this tab:

1. Choose **Options** from the **Restore** menu.
2. Click the **Clients** tab.

Note Modifications made in this dialog box only the currently active window. Changes made in this dialog box will not be saved after closing this NetBackup Restore window.

New Client Name — To add another client name to the **Client List**, type the name of the client in the **New Client Name** box and click **Add**. The client name entered must also be defined in a policy on the NetBackup server.

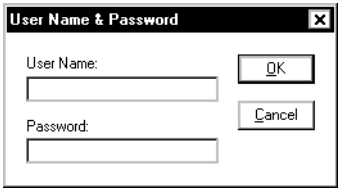
Add — Adds the client, entered in the **New Client Name** box, to the **Client List**.

Client List	The **Client List** contains the client name for your computer. It can also contain the names of remote NetBackup clients. You can select local or remote NetBackup clients on which to perform NetBackup operations. The NetBackup server administrator must set up the required permissions before you can browse and restore from any remote client. To perform a NetBackup operation on a NetBackup client, select the name from the **Client List** and click **Make Current**. The word CURRENT appears in parentheses beside the name of the new default client. To remove a client from this list, see the "Clients Tab" on page 65.
Make Current	Designates the client backup images you can browse for restore operations. First highlight the client in the **Client List**, then click **Make Current**.
Class Type	View and select policy type for the client selected in the **Client List**. The policy type must be the same as specified for the client in the NetBackup configuration on the NetBackup server.
OK	To accept changes to the parameters, click this button.
Cancel	To cancel and return to the previous display without accepting changes to the parameters in this dialog box, click this button.
Help	To view online help for this dialog box, click this button.

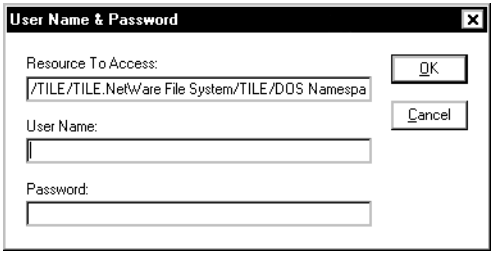
User Name & Password Dialog Box

There are two kinds of User Name and Password dialog boxes, depending on the current operation. Use these dialog boxes to enter the **User Name** and **Password**. You must successfully complete these entries before the NetBackup operation will continue.

During a backup operation, this dialog box displays.



During a restore operation, this dialog box displays.



Resource to Access	This box lists the resource selected in the NetBackup Restore Options dialog box.
User Name	Use a fully qualified login name to the Novell file server. If a fully qualified name is not specified, only the portions of the NDS tree setup as the Bindery Context will be used to validate the **User Name** and **Password**. Fully qualified names are not applicable to Novell 3.x servers.
Password	Use the password assigned to you by the system administrator.
OK	To accept changes to the parameters, click this button.
Cancel	To cancel and return to the previous display without accepting changes to the parameters in this dialog box, click this button.

OTM Parameter Information A

Open Transaction Manager Parameters

The Open Transaction Manager (OTM) parameters in the BP.INI file are used to define the behavior of OTM. NetBackup uses OTM to back up files, databases, and applications that are open or active.

Open Transaction Manager establishes a point-in-time view, or snapshot, of the data on the drives that contain files to be backed up. NetBackup then backs up the selected files as they existed at the time of the snapshot, regardless of file system activity. The snapshot is maintained by using a cache system to store changes that occur during the backup.

In addition to eliminating problems with busy files, Open Transaction Manager keeps all relationships between files in the backup intact. For example, assume that keywords in files A and B must be synchronized for an application to work. Without OTM, if A is backed up but B is changed before it is backed up, the two files are not synchronized after a restore and the application will not work. With OTM, all files are backed up as they exist at a single point in time so that relationships are maintained and these problems cannot occur.

BP.INI File Description

The BP.INI file is divided into sections and each section is formatted as follows:

```
[section name]
parameter name = value
```

Where:

[*section name*]	Identifies the start of a new configuration file section.
parameter name	Identifies the name of a configuration file parameter.
value	Is the value to be set for the associated configuration file parameter.

The following describes the OTM section of the file. An example file follows these descriptions.

[otm] Section

`Cache_File`

Specifies the location of the cache file that contains the copy of data that changes during the backup. For best performance, place the cache file on a drive that is not backed up. By default, the program determines the cache location at run time (for example, SYS:\SYSTEM\OTMCACHE).

`Cache_Control`

Specifies the frequency with which Open Transaction Manager clears its cache during a backup, which can help to reduce the size of the cache file. For example, if this value is set to 50, then after every 50 files that are backed up, Open Transaction Manager clears its cache of data that it has for those files. A lower number results in the cache being cleared more often, but that can decrease performance. The default setting is 0, which means cache clearing does not occur.

When `Current` is set to 0 (meaning that global snapshots are used), the `Cache_Control` setting works as described in the following examples. For these examples, assume that `Current` is set to 0 and that there are two volumes: SYS and USER. Also assume that both volumes are backed up and that Open Transaction Manager places the cache on the SYS volume.

- If `Cache_Control` is set to 0, the cache is never cleared and cannot grow past the `Cache_Size_Init` setting. This means that `Cache_Size_Init` must always be set for the maximum amout of data expected.
- If `Cache_Control` is greater than 0, Open Transaction Manager clears the cache of data for the SYS volume after the backup of the SYS volume is complete. Open Transaction Manager then allows the cache to grow to the `Cache_Size_Max` setting and clears it periodically, according to the `Cache_Control` setting. This allows you to set `Cache_Size_Init` to a lower value because if more space is required, Open Transaction Manager can increase the `Cache_Size_Max` setting.

`Cache_Control` is not used if more than one backup runs at a time. The action that occurs in this instance depends on whether the backups execute at the same time. The first backup that executes is able to use `Cache_Control` but additional backups executing at the same time are not.

`Cache_Size_Init`

Specifies the initial size of the cache file (in megabytes). If you do not specify a value, NetBackup sets it to 150 megabytes. See “Guidelines for Setting the OTM Cache” on page 92 for more information.

`Cache_Size_Max`

Specifies the maximum cache size (in megabytes) of the cache file. The guideline for maximum cache size is to set it to 10% of all used disk space. For example, if your used disk space is 1 GB, set the maximum cache to 100 MB. A shortcut is to set the maximum cache size to 0 MB and let NetBackup determine the appropriate value at run time. The default maximum cache size for the client is 592 MB, and for a master or media server is 250 MB.

`Logging`

Specifies the logging level for open transaction management but does not affect other logging. This allows you to obtain more information about an open transaction management problem without affecting the logging level for other parts of the backup. The value can range from 0 to 6, with level 6 providing the most information. The default value is 0.

`Quiescent_Timeout`

Specifies how many seconds to wait for a quiet period to occur. If this time expires, the backup proceeds, but without open transaction management. The default time period is 60 seconds.

`Quiescent_Wait`

Specifies the duration (in seconds) of the quiet period that must occur before NetBackup starts Open Transaction Manager. The quiet period is a period of time during which no writes are being performed on the drives or volumes to be backed up. The default time period is 5 seconds.

`Use`

Enables open transaction management. This must be turned on for open management to occur. Enter yes or 1 to enable OTM, or no or 0 to disable OTM.

`Current`

The `Current` setting determines the type of snapshot that is taken of the target. Two snapshot types are available: individual and global.

Individual Snapshots

Specifies that OTM takes a snapshot of the resoures configured for a target and backs it up before proceeding to the next target. For example, assume that targets FS_SYS and FS_USER are being backed up. FS_SYS is configured to back up the SYS volume and FS_USER is configured to back up both the USER1 and USER2 volumes. During the course of the backup, a snapshot will be taken of the SYS volume, the SYS volume will be backed up, and then the snapshot will be destroyed. Next, a snapshot will be taken of the USER1 and USER2 volumes, they will be backed up, and then the snapshot will be destroyed. To specify this type of snapshot, the `Current` setting should be 1.

Open transaction management is enabled on only one target at a time, depending on which one is being backed up. This mode is useful when it is not necessary to maintain relationships between files on all the volumes.

Global Snapshots

Specifies that OTM takes a snapshot that includes all of the resources configured for all of the targets before backing up any target. During the course of a backup that uses the same targets, a snapshot will be taken of the SYS volume, the USER1 volume, and the USER2 volume. Next, the volumes are backed up, and then the snapshot is destroyed. To specify this type of snapshot, the `Current` setting should be 0.

Open transaction management is enabled on all of the resources configured for all the targets for the entire duration of the backup. This mode is useful when it is necessary to maintain relationships between files on the different volumes.

Guidelines for Setting the OTM Cache

The required settings for `Cache_Size_Init` and `Cache_Size_Max` depend on the system that is being backed up, and on how Open Transaction Manager is configured. The following explains how NetBackup chooses a volume for the cache and how this choice affects the cache requirements.

When open transaction management is enabled and a backup starts, the cache file is created and NetBackup attempts to place it on a volume where open transaction management is not used. If it is used on all volumes, NetBackup places the cache file on a volume that is big enough to contain it.

The requirement for the initial cache size depends on whether the cache is placed on a volume where open transaction management is used:

- If the cache file is on a volume where open transaction management is being used, the size of the cache file does not grow past the initial size. Here, the initial cache size must be large enough to hold the maximum amount of data that is anticipated (10% of the used disk space is the guideline).
- If the cache file is placed on a volume where open transaction management is not used, the size of the cache file can grow to the maximum size. Here, initial cache size can be set to less than the maximum because it will grow.

The snapshot setting determines the drives where NetBackup uses open transaction management and at what point is it enabled:

- Individual snapshot (set `Current` to 1) enables open transaction management on each target as it is backed up. Here, it is possible to place the cache on a volume where open transaction is not used so a smaller initial cache size is possible.

- Global snapshot (set `Current` to 0) enables open transaction management on all targets that are backed up at the start of the backup. Here, the cache can grow from its initial size only if there is a volume that is not being backed up so that cache can be placed on that volume.

Example BP.INI File

The following is an example of a typical `BP.INI` file:

```
[bp]
ClientName = homer
List_Files_Timeout = 300
Restore_Retries = 0
Time_Overlap = 60
Use_Archive_Bit = yes
Version = 20

[clients]
browser = homer

[servers]
master = whale
server = windows
server = danr

[tcpip]
bpcd = 13782
bprd = 13720

[user]
Backup_Class = pc_alpha
Backup_Sched = user_directed_a

[debug]
flush = 0
level = 0
tcp = 0

[otm]
Cache_File = SYS:\SYSTEM\OTMCACHE
Cache_Control = 0
Cache_Size_Init = 10
Cache_Size_Max = 50
Logging = 0
```


```
Quiescent_Timeout = 60
Quiescent_Wait = 5
Use = 1
Current = 0
```

Glossary

access control list (ACL)

Security information associated with files on some file systems.

ACS

Automated Cartridge System. ACS can refer to any of the following:

- A type of Media Manager robotic control. This robot type is supported only by NetBackup DataCenter servers.
- The StorageTek (STK) system for robotic control.
- The highest-level component under STK's ACS library software, which refers to a specific standalone robotic library or to multiple libraries connected with a media passthru mechanism.

active job

A job for which NetBackup is currently processing backup or restore data.

activity logs

See "debug logs."

activity monitor

A NetBackup administration utility that displays information about NetBackup jobs and provides limited control over them.

administration client

See "remote administration console."

administrator

A user that is granted special privileges to install, configure, and manage the operation of a system, network, or application.

AIT

Sony Advanced Intelligent Tape, a type of tape drive or media type.

alternate-client restore

See “redirected restore (different client).”

alternate-target restore

See “redirected restore (different target).”

alternate path restore

See “redirected restore (different path).”

alternate read server

A server used to read a backup image which was originally written by a different media server. The media server specified as Alternate Read Server must have access to the media containing the backup image or images it is configured to read.

archive

A special kind of backup where NetBackup backs up the selected files, and if the backup is successful, deletes the files from the local disk. In this manual, references to backups also apply to the backup portion of archive operations except where otherwise noted.

archive bit

A file-status bit that the Microsoft based operating system sets when it writes a file, thereby indicating that the file has changed.

attributes for a policy

Configuration parameters that control the behavior of NetBackup during operations involving this policy.

autochanger

See “robotic library.”

autoloader

See “robotic library.”

automatic backup

A scheduled backup by the master server.

back up

The act of copying and saving files and folders to storage media.

backup

Refers to the process of copying and saving files and directories to storage media. For example, *the backup is complete*. This term can also refer to the collection of data that NetBackup saves for a client during a backup or archive. For example, *duplicate the backup*.

Backup is two words when used as a verb. For example, *back up the file*.

backup, archive, and restore interface

The name of the NetBackup Microsoft Windows and Java based user interfaces for clients. On servers these interfaces can be started through the NetBackup Administration Console.

backup window

The period of time during which backups can begin.

block size

The number of bytes in each block of data written on the media during a backup.

bp

A backup, archive, and restore utility for users on NetBackup UNIX clients. It has a character-based, menu interface that can be run from terminals that do not have X Windows capabilities.

bpadm

An administrator utility that runs on NetBackup UNIX servers. It has a character-based, menu interface that can be run from terminals that do not have X Windows capabilities.

bp.conf file

A NetBackup configuration file on UNIX servers and also on UNIX, Macintosh, and OS/2 clients.

bp.ini file

NetBackup initialization file for Novell NetWare target clients.

bpcd

NetBackup Client service on Windows and the NetBackup Client daemon on UNIX.

bprd

NetBackup Request Manager service on Windows and NetBackup Request daemon on UNIX.

cancel a job

Terminating a job and removing it from the job queue.

carousel

See “robotic library.”

catalogs

Internal NetBackup and Media Manager databases. These catalogs contain information about configuration, media, devices, status, errors, and the files and directories in the stored backup images.

CDF

Context-dependent file, which is a type of directory structure on a Hewlett-Packard system.

changer

See “robotic library.”

class

See “policy.”

client

The system with the files to back up, archive, or restore.

client-user interface

See “user interface.”

cluster

See master and media server cluster.

command lines

Commands that users can execute either from the system prompt or in scripts.

compression

The process of compacting data to enable more efficient transmission and storage.

configuration

The parameters that govern the behavior of an application. This term can also refer to the manner in which a network or system is laid out or connected (for example, a network configuration).

consolidated eject

A process of ejecting media for more than one Vault session at a time. A Consolidated Eject can be performed for one or more logical vaults at one time.

consolidated report

A process of generating reports for more than one Vault session at a time. A Consolidated Report can be performed for one or more logical vaults at one time. Consolidated reports are organized by report title, not by vault.

cpio

A UNIX command that can be used for copying files to or from a cpio archive on disk or tape.

ctime

The time that a UNIX inode was changed.

cumulative-incremental backup

A backup that is scheduled by the administrator on the master server and backs up files that have changed since the last successful full backup. All files are backed up if no prior backup has been done. Also see “differential-incremental backup.”

daemon

A program on a UNIX system that runs in the background and performs some task (for example, starting other programs when they are needed). Daemons are generally referred to as services or processes on Windows server systems.

database-agent clients

Clients with additional NetBackup software that is designed to back up relational databases.

database-extension clients

See “database-agent clients.”

debug logs

Logs that can be optionally enabled for specific NetBackup and Media Manager programs and processes and then used to investigate problems.

destination storage unit

A storage unit to which Vault sends the data from a duplication operation. If the duplicated backup images are to be vaulted, then the destination storage unit must correspond to the robotic volume group.

device delays

Delays caused by the device that are beyond the control of the storage application. An example is the time required to position tape under the read and write heads.

device host

A host (that has Media Manager installed) where a drive or robotic control is attached or is defined.

device monitor

A Media Manager administration utility that provides monitoring and manual control of Media Manager storage devices. For example, an administrator or computer room operator can use this utility to manually reset devices or set them to the UP or DOWN state.

DHCP

Dynamic host configuration protocol. This TCP/IP protocol automatically assigns temporary IP addresses to hosts when they connect to the network.

differential-incremental backup

Scheduled by the administrator on the master server and backs up files that have changed since the last successful incremental or full backup. All files are backed up if no prior backup has been done. Also see "cumulative-incremental backup."

directory depth

The number of levels below the current directory level that the NetBackup interfaces show in their directory and file list displays.

directory tree

The hierarchical structure in which files are organized on a disk. Each directory lists the files and directories that are directly below it in the tree. On UNIX, the topmost directory is called the root directory.

disaster recovery

Recovering data from backups after a disk crash or other catastrophe.

disk

Magnetic or optical disk storage media.

disk-image backup

A bit-by-bit rather than a file system backup of a disk drive on a Windows platform.

DLT

Digital-linear tape or tape drive type.

Domain Name Service (DNS)

A program that handles name translation for network communications.

drive cleaning

The use of a special cleaning tape to clean the heads on a drive.

duplicate image

A copy of a backup image.

eject

Move media out of a robotic library.

encryption

Provides additional security by encrypting backup data on the client. This capability is available only with the NetBackup Encryption option.

entry and exit ports

See “media access port.”

exclude list

A list that designates files or directories to exclude from automatic backups.

expiration (image)

The date and time when NetBackup stops tracking a backup image.

expiration (volume)

The date and time when the physical media (tape) is considered to be no longer usable.

external media ID

This is an identifier written on a media cartridge or canister to help the operator identify the volume before inserting it into a drive or robot. For labeled media, the external media ID should be the same as the media ID recorded on the media.

EVSN

See “external media ID.”

FlashBackup

A special type of raw-partition backup that requires the NetBackup FlashBackup separately-priced option (this option is available only for NetBackup DataCenter).

flush level

Controls how often Netbackup clears its log files on a Novell NetWare or Microsoft Windows client platform.

fragment

A part of a backup or archive image. NetBackup can be configured to divide images into fragments when they exceed a certain size or span tapes.

frequency (backup)

How often NetBackup performs scheduled backups. For example, if the frequency is seven days then backups occur once a week.

FROZEN media state

If a volume is FROZEN, NetBackup keeps it indefinitely and can restore from it but not use it for further backups or archives.

full backup

A backup that copies, to a storage unit, all files and directories that are beneath a specified directory.

FULL media state

If this appears in a report or listing, it indicates the volume is FULL and cannot hold more data or be used for further backups.

global attributes

NetBackup configuration attributes that affect all policies.

GDM Dashboard

The name for the Global Data Manager interface. The Dashboard enables monitoring job and drive activity on multiple master servers, as well as providing alerts to problem conditions.

GDM Managed Server

A NetBackup master server that appears as a managed master server in the left pane of the GDM Dashboard.

GDM Server

A NetBackup master server that has the Global Data Manager license activated. When logging into this host, the user can monitor the activity on multiple master servers using the GDM Dashboard interface. If the host has installed the Advanced Reporter option, the reports show information on multiple master servers.

Global Data Manager (GDM)

A separately-priced option (for UNIX servers) that provides an interface with a tree view where the administrator can view and administer multiple master servers. The server where the option is installed is called a GDM Server.

Global Device Database

A single host that serves as the repository for global device configuration information. When you install NetBackup, by default the master server is configured as the global device database host.

GNU tar

A public domain version of the UNIX tar program.

goodies directory

A directory containing programs, scripts, and other files that are not formally supported.

GUI

Graphical user interface.

hard link

On UNIX, a hard link is a pointer to the inode for the data. On a Windows server, a hard link is a directory entry for a file. Every file can be considered to have at least one hard link. On NTFS volumes each file can have multiple hard links, and a single file can appear in many directories (or even in the same directory with different names).

heap level

A parameter for memory-heap debugging on a Novell NetWare or Windows NetBackup client.

hierarchical storage management

The process of automatically migrating selected files from a managed file system to specified migration levels on secondary storage, while maintaining transparent access to those files.

host

A computer that executes application programs.

host name

Name by which a host computer is identified by programs and other computers in the network.

HSM

See storage migrator.

image

The collection of data that NetBackup saves for an individual client during each backup or archive. The image contains all the files, directories, and catalog information associated with the backup or archive.

import

The process of recreating NetBackup records of images so the images can be restored.

include list

A list that designates files or directories to add back in from the exclude list.

incremental backup

See “cumulative-incremental backup” and “differential-incremental backup.”

inject

Move media into a robotic library.

inport

See “media access port.”

inode

A UNIX data structure that defines the existence of a single file.

install_path

Directory where NetBackup and Media Manager software is installed. The default on Windows servers is `C:\Program Files\VERITAS` and on UNIX it is `/usr/openv`.

jbpSA

The Java-based NetBackup interface for performing user backups, archives, and restores.

jnbSA

The Java-based NetBackup interface for administrators.

job

A parcel of work submitted to a computer. NetBackup jobs are backups, archives, or restores.

kernel

The nucleus of an operating system.

keyword phrase

A textual description of a backup.

kill a job

See “cancel a job.”

label

Identifier of a tape or optical disk volume. A recorded label includes a media ID.

A barcode label allows a barcode scanner to be used for media tracking.

library

See “robotic library.”

link

See “hard link” or “symbolic link.”

LMF - Library Management Facility

A Media Manager designation for a category of robot. For the specific vendor types and models in this category, see the VERITAS support web site.

This robot type is supported only by NetBackup DataCenter servers.

load

(noun) Amount of work that is being performed by a system or the level of traffic on a network. For example, network load affects performance.

(verb) Copy data to internal memory. For example, load the installation program.

(verb) Used to indicate tape drive initialization done when new media is being added.

logs

Files where a computer or application records information about its activities.

mailslot

See “media access port.”

man pages

Online documentation provided with UNIX computer systems and applications.

Master and media server cluster

A NetBackup master server and the remote media servers that it is using for additional storage. It is possible to configure clusters only with NetBackup DataCenter servers. NetBackup BusinesServer supports only a single server, the master.

Master of Masters

A NetBackup host where Global Data Manager software is installed. When logging into this host, the interface has a tree view where the administrator can view and administer multiple master servers.

master server

The NetBackup server that provides administration and control for backups and restores for all clients and servers in a master and media server cluster. NetBackup BusinesServer supports only a single server and it is the master.

media

Physical magnetic tapes, optical disks, or magnetic disks where data are stored.

media access port

A slot or other opening in a robot where you can insert or remove a tape without having to access the interior of the robot. After inserting a tape, you move it to a slot by using an inject command. Prior to removing a tape, you move it to the port by using an eject command. The inject and eject commands are supported through the add and move screens in the Media Manager administration interface.

media host

NetBackup server to which the job (client) is sending the data.

media ID

An identifier that is written on a volume as part of the recorded label.

Media Manager

Software that is part of NetBackup and manages the storage devices and removable media.

Media Manager Host

Host where Media Manager is installed (may have devices attached).

media server

A NetBackup server that provides storage within a master and media server cluster. The master can also be a media server. A media server that is not the master is called a remote media server. NetBackup BusinesServer does not support remote media servers.

menu interface

A character-based interface for use on terminals that do not have graphical capabilities.

mount

Make a volume available for reading or writing.

mount point

The point where a file system on a disk logically connects to a system's directory structure so the file system is available to users and applications.

MPX

See “multiplexing.”

mtime

The point in time when a UNIX or NTFS file is modified.

multiplexing

The process of sending concurrent-multiple backups from one or more clients to a single storage device and interleaving those images onto the media.

multiplexed group

A set of backups that were multiplexed together in a single multiplexing session.

NDMP

Network data management protocol. NetBackup requires the NetBackup for NDMP separately-priced option to support NDMP.

NetBackup Client service

NetBackup Windows service that runs on clients and servers and listens for connections from NetBackup servers and clients in the network. When a connection is made, this service starts the necessary programs.

NetBackup configuration options

On UNIX servers and on UNIX and Macintosh, clients, these settings are made in the `bp.conf` file. On NetWare target and OS/2 clients, they are in the `bp.ini` file. On Windows servers and Windows clients, these settings are called properties and are made through the Backup, Archive, and Restore interface or the Host Properties dialog in the NetBackup Administration Console.

NetBackup databases

See catalogs.

NetBackup Database Manager service

NetBackup Windows service that runs on the master server and manages the NetBackup internal databases (called catalogs). This service must be running on the master server during all NetBackup administrative operations.

NetBackup Device Manager service

The NetBackup Windows service that runs on a NetBackup server and starts the robotic control processes and controls the reservation and assignment of volumes. This service runs only if the server has devices under Media Manager control. The process is `ltid`.

NetBackup properties

Same as NetBackup configuration options but are called NetBackup properties on Microsoft Windows platforms.

NetBackup Request Manager service

The NetBackup Windows service that runs on the master server and starts the scheduler and receives requests from clients.

NetBackup Volume Manager service

A NetBackup Windows service that runs on a NetBackup server, allows remote administration of Media Manager, and manages volume information. The process is `vmd`.

NIS

Network information service.

NLM

NetWare loadable module.

NFS

Network file system.

nonrobotic

See “standalone.”

ODL

Optical disk library. This robot type is supported only by NetBackup DataCenter servers.

offsite volume group

A volume group in which media will appear after having been ejected from the robot for vaulting. When Vault ejects media it is moved from the robotic volume group to the off-site volume group.

offsite volume pool

A volume pool that contains media that is to be ejected and vaulted. Backup images written to an off-site volume pool by an original NetBackup backup policy or by Vault's duplication feature will be ejected and vaulted. More than one off-site volume pool can be specified for the Eject step of a Vault profile.

original backup

A backup image created by a backup job. A single backup image or all backup images created by an Inline Tape Copy (multiple copy) configuration are considered original backups. A backup image created by a duplication job is not an original backup.

outport

See "media access port."

partitions

The logical partitions into which a magnetic disk is divided.

patch

A program that corrects a problem or adds a feature to an existing release of software.

path length

Number of characters in a pathname.

pathname

The list of directories in the path to a destination directory or file.

PC clients

NetBackup clients that have Microsoft Windows, Macintosh, or IBM OS/2 operating systems.

peername

The name by which a computer identifies itself when establishing connections to other systems.

policy

Defines the backup characteristics for a group of one or more clients that have similar backup requirements.

port

A location used for transferring data in or out of a computer.

Also see “media access port.”

primary copy

The copy of an image that NetBackup uses to satisfy restores. When NetBackup duplicates an image, the original is designated as the primary copy.

privileges

The tasks or functions that a user, system, or application is authorized to perform.

profile

A vault profile is a way to save configuration settings. Specific parameters for duplication, catalog backup, eject, and report or any combination of these steps, are configured within a profile.

progress report

Log where NetBackup records events that occur during user operations.

proxy restore

A proxy restore allows the user to restore files that he has write access to, on a machine other than his desktop. The files must be in a backup of the machine to which they are being restored.

QIC

Quarter-inch-cartridge tape.

queued job

A job that has been added to the list of jobs to be performed.

raw-partition backup

Bit-by-bit backup of a partition of a disk drive on UNIX. On Windows, this is called a disk-image backup.

rbak

The program that Apollo clients use to read data from tape during a restore.

recorded media ID

This is an identifier written as part of the label on a volume and used by Media Manager to ensure that the correct volume is mounted. The recorded media ID should match the external media ID.

redirected restore (different client)

Restoring files to your client when they were originally backed up from a different client. The administrator using the interface on the master server can direct a restore to any client (this variation is called a server directed restore).

redirected restore (different target)

On a Novell NetWare server platform running the NetBackup target version of client software, this operation restores files to a different target than the one from which they were backed up.

redirected restore (different path)

Restores files to a different directory than the one from which they were backed up.

registry

A Microsoft Windows database that has configuration information about hardware and user accounts.

remote administration console

A Windows NetBackup client that has the administration interface software installed and can be used to administer NetBackup servers.

remote media server

A media server that is not the master. Note that only NetBackup DataCenter supports remote media servers. NetBackup BusinesServer supports only a single server, the master.

residence

In Media Manager, information about the location of each volume is stored in a volume database. This residence entry contains information, such as robot number, robot host, robot type, and media type.

resource

A Novell NetWare term that refers to a data set on the target. For example, in DOS, resources are drives, directories, and files. Also see “target service.”

restore

(verb) The act of restoring selected files and directories from a previous backup or archive and returning them to their original directory locations (or to a different directory).

(noun) The process of restoring selected files and directories from a previous backup and returning them to their original directory locations (or to a different directory).

retention level

An index number that corresponds to a user-defined retention period. There are 10 levels from which to choose (0 though 9) and the retention period associated with each is configurable. Also see “retention period.”

retention period

The length of time that NetBackup keeps backup and archive images. The retention period is specified on the schedule.

robotic arm

The component of a robotic library that physically selects the media (tape or optical disk).

robotic library

Refers to a robot and its accompanying software. A robotic library includes a collection of tapes or optical platters used for data storage and retrieval. For example, a Tape Library DLT (TLD) refers to a robot that has TLD robotic control.

robotic volume group

A volume group from which media will be ejected and vaulted. When Vault duplicates backups, they are duplicated to media in the robotic volume group.

root

The highest level directory in a hierarchical directory structure. In MS-DOS, the root directory on a drive is designated by a backslash (for example, the root on drive C is C:\). On UNIX, the root directory is designated by a slash (/).

Also, a UNIX user name having administration capability.

RS-232

An industry-standard interface for serial communications and sometimes used for communicating with storage peripherals.

RSM Interface

Application in Windows 2000 used to manage Removable Storage Manager (RSM) devices.

RSM - Removable Storage Manager

A Media Manager designation for a category of robot. For the specific vendor types and models in this category, see the VERITAS support web site.

Also, a component of the Windows 2000 operating system that manages storage devices.

RVSN

See “recorded media ID.”

schedules

Controls when backups can occur in addition to other aspects of the backup, such as: the type of backup (full, incremental) and how long NetBackup retains the image.

SCSI

Small computer system interface. This is a type of parallel interface that is frequently used for communicating with storage peripherals.

server-directed restore

Using the user interface on the master server to restore files to any client. Only the administrator can perform this operation.

server independent restore

Restoring files by using a NetBackup server other than the one that was used to write the backup. This feature is available only with NetBackup DataCenter.

server list

The list of servers that a NetBackup client or server refers to when establishing or verifying connections to NetBackup servers. On a Windows server and Microsoft Windows clients, you update the list through a dialog box in the interface. On a UNIX server and UNIX and Macintosh clients, the list is in the `bp.conf` file. On NetWare target and OS/2 clients, the list is in the `bp.ini` file.

service

A program on a Windows server system that runs in the background and performs some task (for example, starting other programs when they are needed). Services are generally referred to as daemons on UNIX systems.

session

An instance of NetBackup checking its schedules for backups that are due, adding them to its worklist, and attempting to complete all jobs in the worklist. For user backups and archives, a session usually consists of a single backup or archive.

Session (Vault)

A vault session consists of executing a particular profile or profiles.

shared drives

See “Shared Storage Option (SSO).”

Shared Storage Option (SSO)

A separately priced VERITAS software option that allows tape drives (standalone or in a robotic library) to be dynamically shared among multiple NetBackup and Storage Migrator servers.

This option is supported only on NetBackup DataCenter servers.

SMDR

Storage management data requestor, a Novell NetWare program that provides its services transparently to all SMS modules and lets remote and local modules communicate with one another.

SMS

Novell NetWare storage management services.

source volume group

A volume group from which Vault can select backups to duplicate. This parameter is used to restrict the list of backups from all backups that reside on media in any volume group to backups that reside on media in a single volume group. Where a volume group corresponds to a particular robot, the profile will duplicate only backups on media in that robot. The Source Volume Group is normally only specified if you have multiple robots attached to the same server, for example you want to duplicate backups that reside in robot 0 to media that reside in robot 1.

SSO

See “Shared Storage Option (SSO).”

stacker

Usually a small robotic library that contains one drive only. See “robotic library.”

standalone

A qualifier used with drives and media to indicate they are not associated with a robot. For example, a standalone tape drive is one where you must manually find and insert tapes before using them. A standalone volume is one that is located in a standalone drive or is stored outside of a drive and designated as standalone in the volume configuration.

status code

A numerical code, usually accompanied by a troubleshooting message, that indicates the outcome of an operation.

storage migrator

Refers to the VERITAS Storage Migrator line of hierarchical storage management products for UNIX and Windows. These products make extra room on a disk by transparently moving data to other storage and then transparently retrieving the data when it is needed by a user or application.

Storage Migrator is available only for NetBackup DataCenter servers.

storage unit

Refers to a storage device where NetBackup or Storage Migrator stores files. It can be a set of drives in a robot or consist of one or more single tape drives that connect to the same host.

SUSPENDED media state

If a volume is SUSPENDED, NetBackup can restore from it but cannot use it for backups. NetBackup retains a record of the media ID until the last backup image on the volume expires.

symbolic link

On a UNIX system, this is a pointer to the name of the file that has the source data.

TapeAlert

Allows reactive cleaning for most drive types and is a function of the tape drive.

tape format

The format that an application uses to write data on a tape.

tape marks

A mark that is recorded between backup images on a tape.

tape overhead

The space required for data that is not part of the backup images. For example, tape marks and catalogs of what are on the tape are considered overhead.

tape spanning

Using more than one tape to store a single backup image.

tar

Tape Archive program that NetBackup uses to extract backup images during a restore.

target

See “target service.”

target service

A Novell NetWare service that needs storage management. The SMS views all services (for example, print services, communication services, workstations) as targets.

Target Service Agent

A Target-service agent is a Novell NetWare agent that prepares the target's data for SMS during a backup and for the target during a restore.

TLD - Tape Library DLT

A Media Manager designation for a category of robot. For the specific vendor types and models in this category, see the VERITAS support web site.

TLH - Tape Library Half-inch

A Media Manager designation for a category of robot. For the specific vendor types and models in this category, see the VERITAS support web site.

This robot type is supported only by NetBackup DataCenter servers.

TLM - Tape Library Multimedia

A Media Manager designation for a category of robot. For the specific vendor types and models in this category, see the VERITAS support web site.

This robot type is supported only by NetBackup DataCenter servers.

TL4 - Tape Library 4MM

A Media Manager designation for a category of robot. For the specific vendor types and models in this category, see the VERITAS support web site.

TL8 - Tape Library 8MM

A Media Manager designation for a category of robot. For the specific vendor types and models in this category, see the VERITAS support web site.

timeout period

The period of time that an application has allotted for an event to occur.

TIR

See “true image restore.”

tpconfig

A Media Manager administration utility for configuring devices which is started from the command line. On UNIX, it has a character-based menu interface that can be run from terminals that do not have X Windows capabilities. tpconfig also has a command line interface.

transfer rate

The rate at which computer information is transferred between a source and a destination.

transport

See “robotic arm.”

true image restore

Restores the contents of a directory to what it was at the time of any scheduled full or incremental backup. Previously deleted files are ignored.

TS8 - Tape Stacker 8MM

A Media Manager designation for a category of robot. For the specific vendor types and models in this category, see the VERITAS support web site.

TSA

See “Target Service Agent.”

TSD - Tape Stacker DLT

A Media Manager designation for a category of robot. For the specific vendor types and models in this category, see the VERITAS support web site.

TSH - Tape Stacker Half-inch

A Media Manager designation for a category of robot. For the specific vendor types and models in this category, see the VERITAS support web site.

This robot type is supported only by NetBackup DataCenter servers.

unassigned media

Media that contain no valid images. A piece of unassigned media has an entry in the volumes database but no entries in the images database. Unassigned Media do not have a “time assigned” in the Media section of the GUI.

user interface

The program used to perform user backups, archives, and restores.

user operation

A backup, archive, or restore that is started by a person on a client system.

Vault

Vault is a separately-priced NetBackup option that provides offsite backup management. Vault automatically duplicates specified backup images, and automates the process of offsite media rotation (a critical component of any backup or disaster recovery strategy). Vault manages offsite storage and retrieval of media for original backups, duplicate backups, and catalog backups. Additionally, NetBackup Vault generates reports to track the location and content of each piece of media.

vault

In the context of the NetBackup Vault, a vault is logical entity associated with a particular robot that acts as a designated holding place for backups that will eventually be sent to a physical offsite vault. The term ‘vault’ is used to refer both to the process, and to the physical storage location of a set of tapes offsite.

vault process

Vaulting is the process of choosing backup images to duplicate or eject, optionally duplicating backups, ejecting duplicate or original media, storing it at an offsite location, and later returning expired media to your robot. Vaulting is an integral part of the disaster recovery process.

verbose flag

Configuration file entry that causes a higher level of detail to be written in the logs.

verify

An operation that compares the list of files that are actually on a volume with what NetBackup has recorded as being on it. The data that is on the media is not verified.

vmadm

A Media Manager administrator utility for managing volumes. It runs on UNIX and has a character-based, menu interface that can be run from terminals.

vm.conf

A Media Manager configuration file with entries that include the servers that can manage local devices and default media ID prefixes for media that do not contain barcodes.

volume

Media Manager volumes are logical units of data storage or cleaning capability on media that have been assigned media IDs and other attributes, which are recorded in the Media Manager volume database.

volume configuration

Refers to configuration information that is stored in the Media Manager volume database.

volume database

An internal database where Media Manager keeps information about volumes. All hosts (where Media Manager is installed) have a volume database. However, the database is empty unless the host is designated as a volume database host.

volume database host

The host (where Media Manager is installed) that contains information about the volumes that Media Manager uses in a device. Because NetBackup BusinesServer supports only a single server, the volume database host is always on the same server.

volume group

A set of volumes that are configured within Media Manager to reside at the same physical location (for example, in a specific robot).

volume pool

A set of volumes that are configured within Media Manager to be used by a single application and are protected from access by other applications and users.

wakeup interval

The time interval at which NetBackup checks for backups that are due.

wildcard characters

A character that can be used to represent other characters in searches.

Microsoft Windows

(noun) Describes a line of operating systems developed by Microsoft, Inc.

For more information on the Windows operating systems that NetBackup supports, refer to the VERITAS support web site at `http://www.support.veritas.com`.

Windows

(adjective) Used to describe a specific product or clarify a term. Some examples are: Windows 95, Windows 98, Windows NT, Windows 2000, Windows servers, Windows clients, Windows platforms, Windows hosts, and Windows GUI.

Windows servers

A term that defines the Windows server platforms that NetBackup supports; those platforms are: Windows NT and 2000.

Windows clients

A term that defines the Windows client platforms that NetBackup supports; those platforms are: Windows 95, 98, ME, NT, 2000, XP (for 32- and 64-bit versions), and LE.

Windows Display Console

A NetBackup-Java interface program that runs on Windows 2000, NT, 98, and 95 computers. Users can start this interface on their local system, connect to a UNIX system that has the NetBackup-Java software installed, and then perform any user operations that their permissions allow.

WORM media

Write-once, read-many media for optical disks. NetBackup BusinesServer does not support WORM media.

xbp

The X Windows-based backup, archive, and restore program for users on NetBackup UNIX clients.

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